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SECTION 1.0 - Introduction

The **MLRA Revision THrough Aggregation of STATSGO** (MARTHAS) system interface is made up of two view windows. An ArcView window that contains spatial data themes is known as a “view”. Each view has a separate Graphical User Interface (GUI) containing a unique set of menu pulldowns, buttons, and tools that are unique to that view. The GUI of a view is enabled and visible when the view is activated. To activate a view, simply place the cursor in the top bar of the view and click. The view is active when the activate bar is highlighted (figure 1 left side view is activated). The spatial data themes available to display are located in the theme table of contents (TOC) on the left side of the view window. Clicking on the small raised square adds or removes a check mark. This action toggles the theme on or off. In other words, the theme is “on” and is visible in the view when a check mark is placed in the small square (figure 1.0-1).

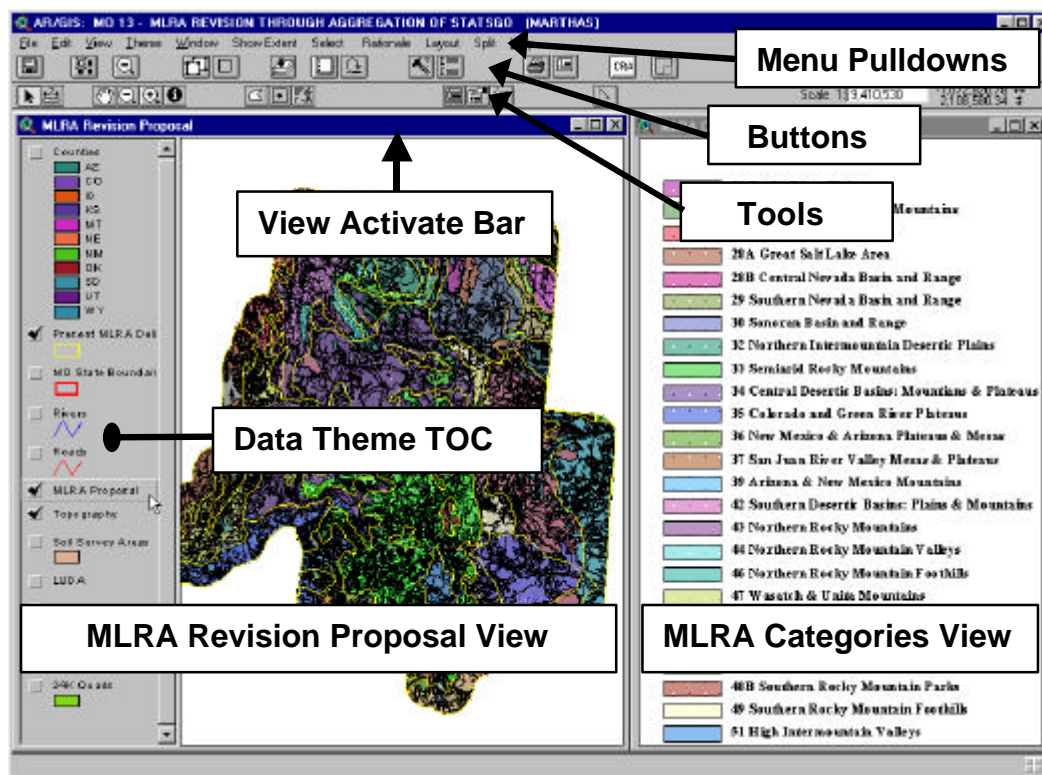


Figure 1.0-1. Basic layout and relevant elements of the MARTHAS system.

The left view of the MARTHAS system is titled **MLRA Revision Proposal**. The right side view is titled **MLRA Categories**. Each view is linked to a unique GUI that allows specific system functionality. Using the MARTHAS system for MLRA revision is an intuitive three step process (Refer to Section 5.0)

- (1) **Make a selection set** of the polygons in the *MLRA Revision Proposal* view,
- (2) **Select the desired MLRA category** from the *MLRA Categories* view, and
- (3) **Create the rationale file** for the reclassified set of polygon(s).

SECTION 2.0 - Introduction to the *MLRA Revision Proposal* View GUI

This section describes all of the system functionality found in the *MLRA Revision Proposal* view GUI. The *MLRA Revision Proposal* view must be the “active” view in order to access its GUI. To make a view active, click on the top bar of the view window. The view bar will become highlighted and the custom menu pulldowns, buttons, and tools will appear (figure 2.0-1). Only one view window can be active at any one time.

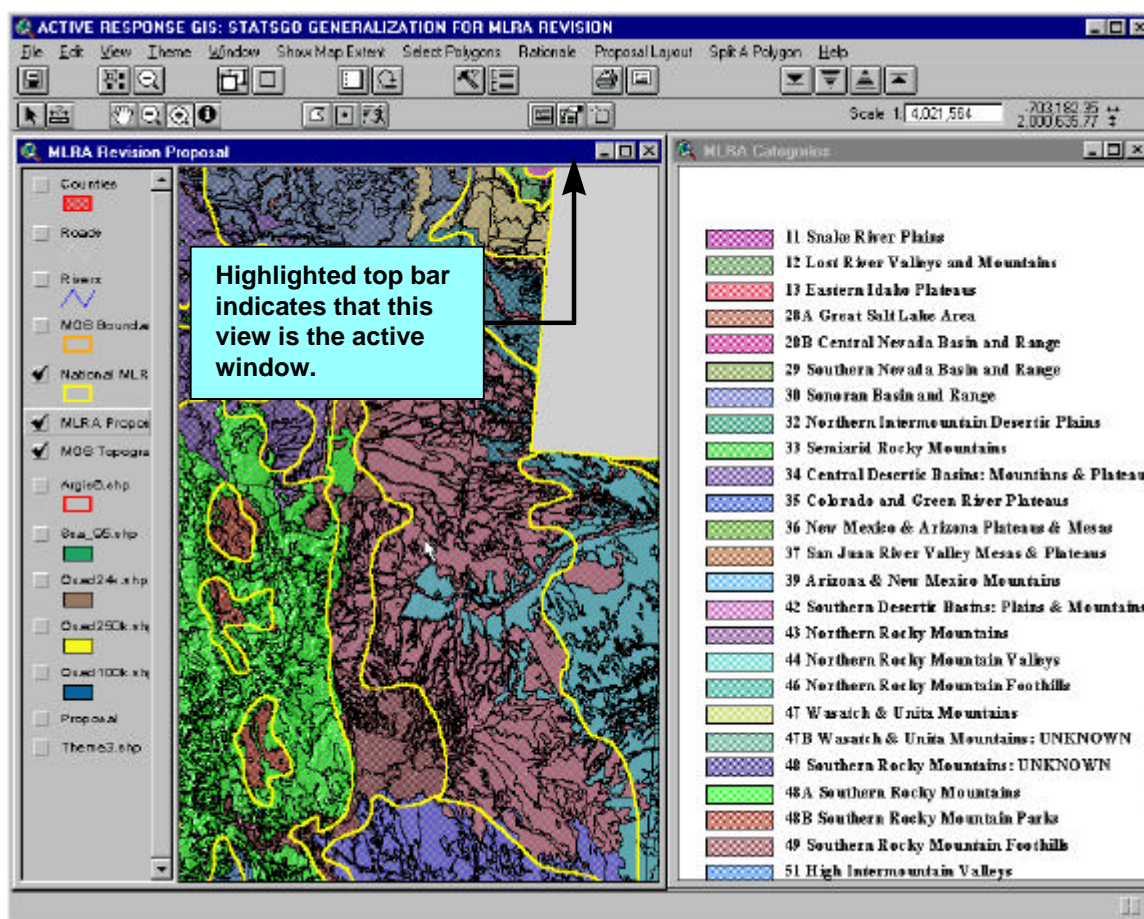


Figure 2.0-1. Clicking on the top bar of the *MLRA Revision Proposal* view will activate its unique GUI. This GUI is linked to the *MLRA Revision Proposal* view containing functionality for MLRA revision.

There are ten menu pulldowns found in the *MLRA Revision Proposal* GUI. The first five are typical ArcView menu functions: **File**, **Edit**, **View**, **Theme**, and **Window**. The remaining five menus are custom MARTHAS revision functions: **Show Extent**, **Select**, **Rationale**, **Layout**, and **Split**. Each menu pulldown has at least one menu item that performs a specific spatial, tabular or file management function.

Figure 2.0-2 illustrates the *MLRA Revision Proposal* view with the **Rationale** menu pulldown activated. The items under this menu pulldown are linked to programs that

initiate specific functionality. For example, clicking on the *Show Individual POLYGON Rationale File* item starts a program that displays the rationale text of the selected polygon.

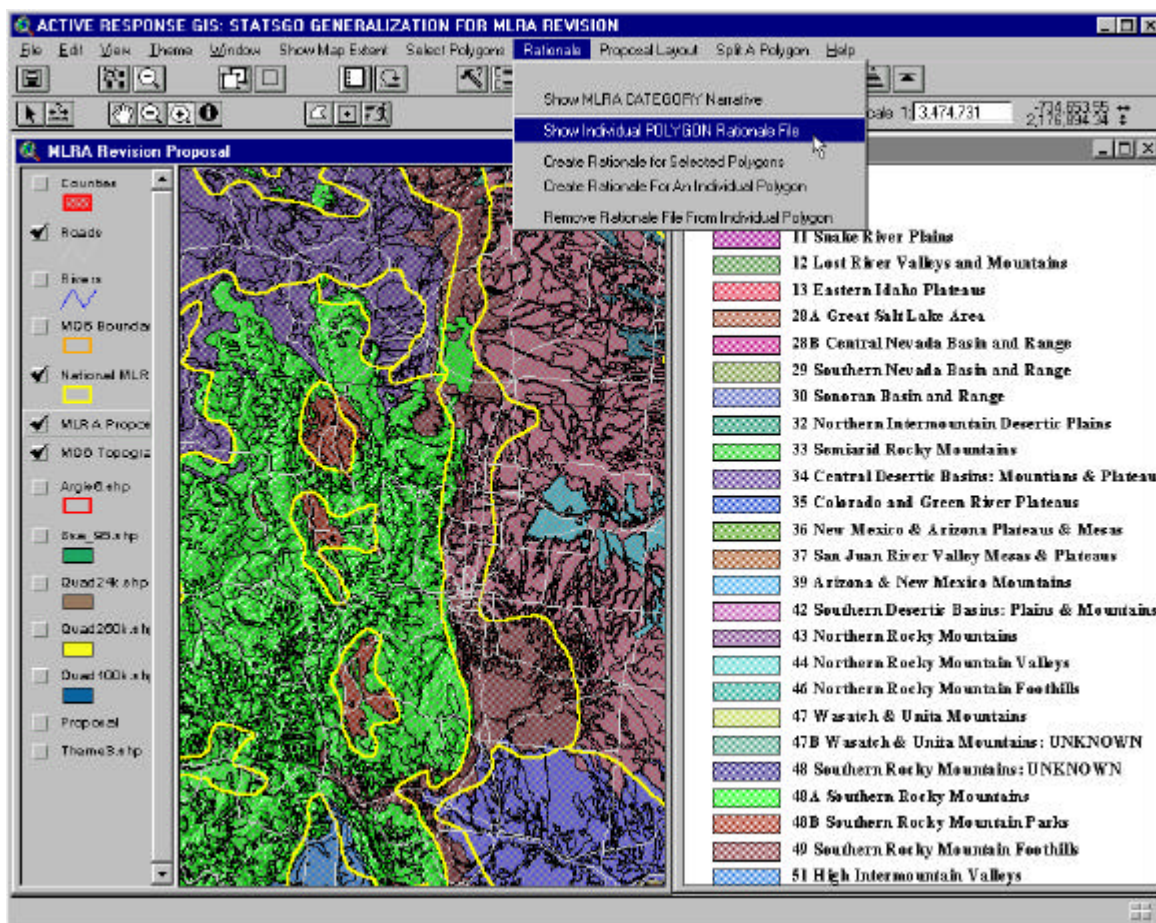


Figure 2.0-2. Example of menu pulldowns and their associated menu items. The *Rationale* menu pulldown has been single clicked displaying menu items..

SECTION 2.1 - MLRA Revision Proposal ArcView Pulldown Functionality

The following are brief descriptions of the ArcView pulldown (figure 2.1-1) and items found in the *MLRA Revision Proposal* GUI: **File**, **Edit**, **View**, **Theme**, and **Window**.



Figure 2.1-1. *MLRA Revision Proposal* ArcView menu pulldown functionality: *File*, *Edit*, *View*, *Theme*, and *Window* menu pulldowns.

2.1.1 FILE

This menu supplies the user with typical ArcView functions for saving, exiting and linking ArcView extensions. There are three items under the **File** menu pulldown:

- A) *Save Project*,
- B) *Extension*, and
- C) *Exit*.

Item Descriptions

A) *Save Project*

The *Save Project* item saves the Arcview project file. A project file is an ASCII file with a “.apr” extension. The project file contains all the information about the organization of project elements, including views, themes, menus, buttons, tools, scripts, among others. The project file name used for the MARTHAS system is based on the MO designation (e.g., *mo6.apr* or *argis6.apr*).

NOTE: There is the possibility that the project file can become corrupted or accidentally deleted. The user is advised to keep **updated** copies of the project file in a separate sub-directory as well as a copy of the .apr on a 3.5” disk. Refer to section 7.2 for an explanation of reloading a backup copy of the MARTHAS project file.

B) *Extension*

This allows the user to load any ArcView extensions. For example, if the user needs to import any CAD files, they can load the CAD-Reader extension.

C) *Exit*

The *Exit* item exits the user from MARTHAS system and the Arcview program. The user will be prompted to save the project if any changes have been made to the project.

NOTE: This will exit the user completely from the Arcview program.

2.1.2 EDIT

The most important functions under the **Edit** menu pulldown concern copying, pasting, and deleting data themes. The remaining functionality concerns the use and manipulations of view “Graphics”. The graphics functionality is rarely used and will not be described under this section. If more information is required, refer to the ArcView instruction books and manuals. NOTE: All of the following theme items work on a active theme (refer to section 1.0) or set of active themes. The following items will be described:

- A) *Cut Themes*,
- B) *Copy Themes*,
- C) *Delete Themes*, and
- D) *Paste*

Item Description

A) *Cut Themes*

This item will remove the active theme or active themes from the active view window (refer to section 1.0) and copies the removed theme(s) to the system clipboard.

B) *Copy Themes*

Copy Themes will make a system clipboard copy of the active theme(s). The copied theme(s) can then be pasted into another view window. This does not cut or delete the original copied themes.

C) *Delete Themes*

Deletes the active theme(s). No copy is created in the system clipboard.

D) *Paste*

Pastes the contents of the system clipboard into the active view window or table of contents.

2.1.3 VIEW

The *View* menu pulldown contains many useful and important items. The are the more important items under the *View* menu pulldown that enhance and facilitate the MLRA revision process:

A) *Properties,*

B) *Add Theme,*

C) *Zoom To Themes,* and

D) *Zoom To Selected.*

Item Description

A) *Properties*

This item will bring up a dialog box containing important information and parameters about the active view, including view title, map and distance units, and map projection. Refer to the ArcView help function or users manuals.

B) *Add Theme*

Use this function to add data themes to the active view window. A dialog box will appear prompting the user to select the desired data theme. Data themes can be either an ArcView theme or an Arc/Info coverage (refer to Section 8.1).

C) *Zoom To Themes*

Allows the user to zoom to the extent of the active theme.

D) *Zoom To Selected*

The system will zoom to the extent of all selected polygons of the active theme. This function can aid the user in determining inadvertent selections as well as zooming to the extent of a category selection.

2.1.4 THEME

The *Theme* menu pulldown contains many useful functions specific to themes including properties, legends and theme tables (.dbf). The most important items are as follows:

- A) *Properties*
- B) *Convert To Shapefile*
- C) *Hide/Show Legend*
- D) *Table*
- E) *Query*

Item Description

A) *Properties*

This function brings forth the theme properties dialog box, from which the user can, among others, change or modify the theme title, show file name and path, labeling, etc. When a new theme is added to the active view TOC (refer to section 2.1.4 - 2), the user can rename the theme name seen in the TOC, or input comments about the theme.

B) *Convert To Shapefile*

Allows the user to create a new ArcView shapefile from: 1. Selected features of an existing shapefile, 2. An Arc/Info coverage, or 3. CAD files (with use of the CAD-Reader ArcView extension)

C) *Hide/Show Legend*

Toggles the legend of the active theme to be visible or hidden.

D) *Table*

Used to bring forth the theme's table (.dbf) window document. A unique table GUI appears when the table is the active window document. The table GUI has multiple functions that allow querying, editing, summaries, statistical analysis, etc.

E) *Query*

Allows user to query the table database through a query dialog box. The same function is found using the *Theme Data Query* button found in the *MLRA Revision Proposal* view GUI (refer to Sections 2.3 and 4.1, figures 4.1-4 and 4.1-5).

2.1.5 WINDOWS

Use the *Windows* menu pulldown to access the project window. Click on the project file name that will always be the item labeled “1”. For example, the project window file might be “**1 argis7.apr**”. Clicking on this item initiates the project window (figure 2.1.5-1). Each GUI has a specific title associated to it. The title of the GUI that the *MLRA Revision Proposal* view is linked to is “View” (figure 2.1.5-1a). The views titled *MLRA Revision Proposal* and *Present Zoomed Extent* both use the “View” GUI described in section 2. Figure 2.1.5-1b shows how the *MLRA Categories* view is linked to a different GUI titled “Selector”.

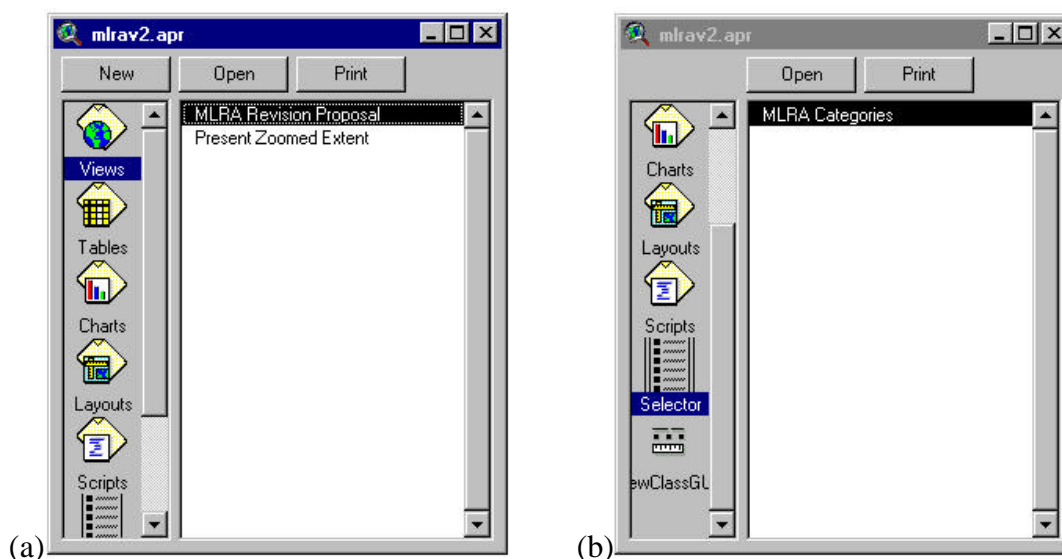


Figure 2.1.5-1. (a) Project window showing the view documents associated with the GUI titled “View”: *MLRA Revision Proposal* view and the *Present Zoomed Extent* view. (b) the *MLRA Categories* view is under the GUI titled “EcoGUT”.

The user can use the project window to create new views, tables layouts, charts, and scripts as well as accessing existing views, tables, layout, charts, and scripts. The project window title is the name of the project file (refer to section 2.1.1 - A).

SECTION 2.2 - MLRA Revision Proposal MARTHAS Pulldown GUI

The following are brief descriptions of each MARTHAS menu pulldown (figure 2.2-1) and associated items found in the *MLRA Revision Proposal* GUI: **Show Extent**, **Select**, **Rationale**, **Layout**, and **Split**.



Figure 2.2-1. *MLRA Revision Proposal* MARTHAS system pulldown menu functionality: *Show Extent*, *Select*, *Rationale*, *Layout*, and *Split*

2.2.1 SHOW EXTENT

There is one item under the **Show Extent** pulldown that allows the user to view the extent of the present zoom as a red highlighted rectangle overlaid on the MO boundary theme display in a separate view window. This same function can be accessed with the *Show Extent* button (section 2.3.1): A) *Show Zoomed Extent*.

Item Description

A) *Show Zoomed Extent*

When the user zooms in to the *MLRA Proposal* theme polygons it can sometimes be difficult to tell exactly where in the MO area they have zoomed. This item will display a separate view containing the MO area and a red outlined box representing the present zoomed extent.

2.2.2 SELECT

The *Select* pulldown menu contains functions that allow the user four different methods for selecting polygons as well as functions that relate directly to selected polygons. There are eight items under the **Select** pulldown menu:

- A) *Set To Classify Mode,*
- B) *Sketch Selection Polygon,*
- C) *Select By Pointing,*
- D) *Select An MLRA Category,*
- E) *Select Within Present Zoomed Area,*
- F) *Highlight Outlines of Selected Polygons,*
- G) *Remove Highlight of Selected Polygons,* and
- H) *Clear Selected Polygon(s).*

Item Description

A) *Set To Classify Mode*

This function sets the system to **MLRA classify mode** by automatically activating the classifying tool located in the *MLRA Categories* GUI (right side view). The user should click this item at the beginning of a classification session to ensure it is set to the proper mode. In addition, the classification mode may occasionally get turned off during the process of MLRA revision. If this occurs, simply click this item to reset back to classify mode.

B) *Sketch Selection Polygon*

This allows the user to draw a polygonal area to select a desired group of polygons from the *MLRA Proposal* data set theme. All polygons whose center falls within the user

defined selection polygon will become part of the polygon record selection set. The selected polygons will have the yellow highlight color.

C) *Select By Pointing*

Allows the user to select an individual polygon. The polygon selection can be toggled on and off by simply clicking on the polygon. For example, the user can click on a polygon to select or click on a previously selected polygon to turn off its selection.

D) *Select An MLRA Category*

Allows user to select **all** polygons of a single MLRA category. The user is prompted to click inside the box of the desired MLRA category located in the right side view. This will select all polygons of that class. CAUTION!: If the user is zoomed into a specific area and chooses this option, **all** polygons of the selected class will be selected including all selected polygons outside the present zoomed extent. If the user wants to select a specific MLRA class only within the present zoomed area, then use the *Select Within Present Zoomed Area* item function.

E) *Select Within Present Zoomed Area*

Allows user to select the desired MLRA category within the area present zoomed area only. This gives the user the ability to select on and classify in specific areas. The user is prompted the same manner as the *Select An MLRA Category*.

F) *Highlight Outlines Of Selected Polygons*

Adds a bright yellow highlight to any selected polygons in the *MLRA Proposal* theme. This is useful when it is difficult to see what polygons are presently selected.

G) *Remove Highlight of Selected Polygons*

Removes all highlighted outlines. This does not, however, turn off the present selection of the polygons.

H) *Clear Selected Polygon(s)*

Allows user to un-select all presently selected polygons. The yellow highlight of the selected polygons will disappear indicating no polygons are selected.

2.2.3 RATIONALE

The **Rationale** pulldown menu contains function that allows the user to create, retrieve, modify, or delete rationale files. There are five items under the **Rationale** pulldown:

- A) *Show MLRA Category Narrative,*
- B) *Show Individual Polygon Rationale File,*
- C) *Create Rationale For Selected Polygons,*
- D) *Create Rationale For An Individual Polygon, and*
- E) *Remove Rationale File From Individual Polygon.*

Item Description

A) *Show MLRA Category Narrative*

Allows user to view an ASCII text file containing the description of the selected MLRA category. User selects the desired MLRA category from the MLRA Categories view and a textedit window will pop-up containing the description ASCII text file.

B) *Show Individual Polygon Rationale*

Allows user to click on any polygon in the database and retrieve the ASCII text file containing rationale for that polygon. If no rationale file exists for the selected polygon, a message will appear relating that fact.

C) *Create Rationale For Selected Polygons*

Allows user to create a single rationale ASCII text file that is related to all selected polygons. Each selected polygon record will have the text file name stored in the theme table. This function will check for an existing rationale file that is associated to any of the selected set of polygons. If there is an existing rationale file, the user then has the choice of canceling the operation or overwriting the existing file(s) with the new rationale file.

D) *Create Rationale File For An Individual Polygon*

Allows user to create a rationale file for an individual polygon. This function operates exactly like the previous item except that it creates a rationale file for one polygon at a time and not a group of polygons.

E) *Remove Rationale File From Individual Polygon*

Allows user to delete a rationale file from the selected polygon.

2.2.4 LAYOUT

The layout menu allows the user to reverse all classification changes back to the original classification, making backups of both MLRA PROPOSAL and PRESENT MLRA DELINEATION themes, as well as the MARTHAS auto-load sequence. There are seven items under this menu pulldown:

A) *Change To Original MLRA Classification,*

B) *Make Backup of MLRA PROPOSAL,*

C) *Make Backup of PRESENT MLRA DELINEATION,*

****MARTHAS Auto-Load Sequence****

D) *STEP 1: Change Pathway Globals*

E) *STEP 2: Load MARTHAS Data Themes*

F) *STEP 3: Load Legend Selector Theme*

G) *Delete All Themes in MLRA REVISION PROPOSAL View.*

Item Descriptions

A) Change To Original MLRA Classification

This function will return all MLRA classification changes back to their original classification designations. NOTE: This function should only be used with caution, as any MLRA revision changes will be permanently eliminated.

B) Make Backup of MLRA PROPOSAL

Allows user to quickly make a backup copy of the MLRA PROPOSAL theme. This function automatically makes a copy of the .shp, .dbf, and .shx files that make up a single shapefile. This function should be use frequently (at least once a day during the revision process). The backup file is placed into the SAVEPROP subdirectory. The user will be prompted to type in a name for the backup copy MLRA PROPOSAL or keep the default file name (e.g., mo6_bak.shp).

C) Make Backup of PRESENT MLRA DELINEATION

Allows user to quickly make a backup copy of the PRESENT MLRA DELINEATION theme. This function automatically makes a copy of the .shp, .dbf, and .shx files that make up a single shapefile. This function should be use every time the user has edited the theme. The backup file is placed into the SAVEPROP subdirectory. The user will be prompted to type in a name for the backup copy PRESENT MLRA DELINEATION or keep the default file name (e.g., nmlra_bak.shp).

****MARTHAS Auto-Load Sequence****

D) STEP 1: Change Pathway Globals

The first step in the process for auto-loading the MARTHAS system. This function prompts the user to type in the correct pathway to where on the hard drive the MARTHAS system and subdirectories reside and automatically integrates the new pathway into the system. If this step is not completed, MARTHAS will not be able to find the required system and data themes. This function also automatically checks the type of operating system (OS) on which the system has been loaded and updates the global variable containing the type of text editor to use. If the system is loaded onto a UNIX OS, the textedit call is “textedit”. Otherwise if the OS is a Microsoft base (Windows95), the texteditor used is “notepad.exe”.

E) STEP 2: Load MARTHAS Data Themes

After changing the system pathway globals, the user can then load the MARTHAS data sets. This function automatically loads all data theme, complete with previously saved legends, into the MLRA REVISION PROPOSAL view Table of Contents (TOC) (refer to fig. 1.0-1). The data themes are loaded in the proper order. The user will need to modify the legend for the background hillshade image by hand.

F) *STEP 3: Load Legend Selector Theme*

The final step in the MARTHAS auto-loading process is to load the legend selector theme into the MLRA CATEGORIES view.

G) *Delete All Themes in MLRA REVISION PROPOSAL View*

This function allows the user to automatically remove all themes in the MLRA REVISION PROPOSAL view TOC.

2.2.5 SPLIT

There are three item under the ***Split*** menu pulldown:

- A) *Split A Polygon,*
- B) *Undo Last Split,*
- C) *Merge Selected Polygons.*

Item Description

A) *Split A Polygon*

Allows the user to split a single polygon at a time. The user first selects the polygon to be split using the *Select By Pointing* tool (refer to section 4.0). The selected polygon will then have selection squares appear around the polygon. This then allows the user to draw the split line through the polygon. The program will then create two new polygons and give them the classification of the original single polygon. All other relevant record data will be retained for each new polygon.

B) *Undo Last Split*

Allows the user to undo the **last** split polygon. This function only allows the last split polygon to be “un-split”. Use the *Merge Selected Polygons* function (see below) if there are other splits to be reversed.

C) *Merge Selected Polygons*

Allows the user to merge (un-split) polygons that have been previously split. However, the function will not allow polygons that did not originate from the same base polygon to be merged.

SECTION 2.3 - MLRA Revision Proposal - BUTTONS

There are 12 buttons in the *MLRA Revision Proposal* view GUI. Some of these buttons are short cuts that have the same functionality found in the pulldowns menus (refer to Section 2.2). For example, the button labeled *Highlight Outlines* (figure 2.3-1) is the same function found in the *Highlight Outlines Of Selected Polygons* item under the *Select* menu pulldown.

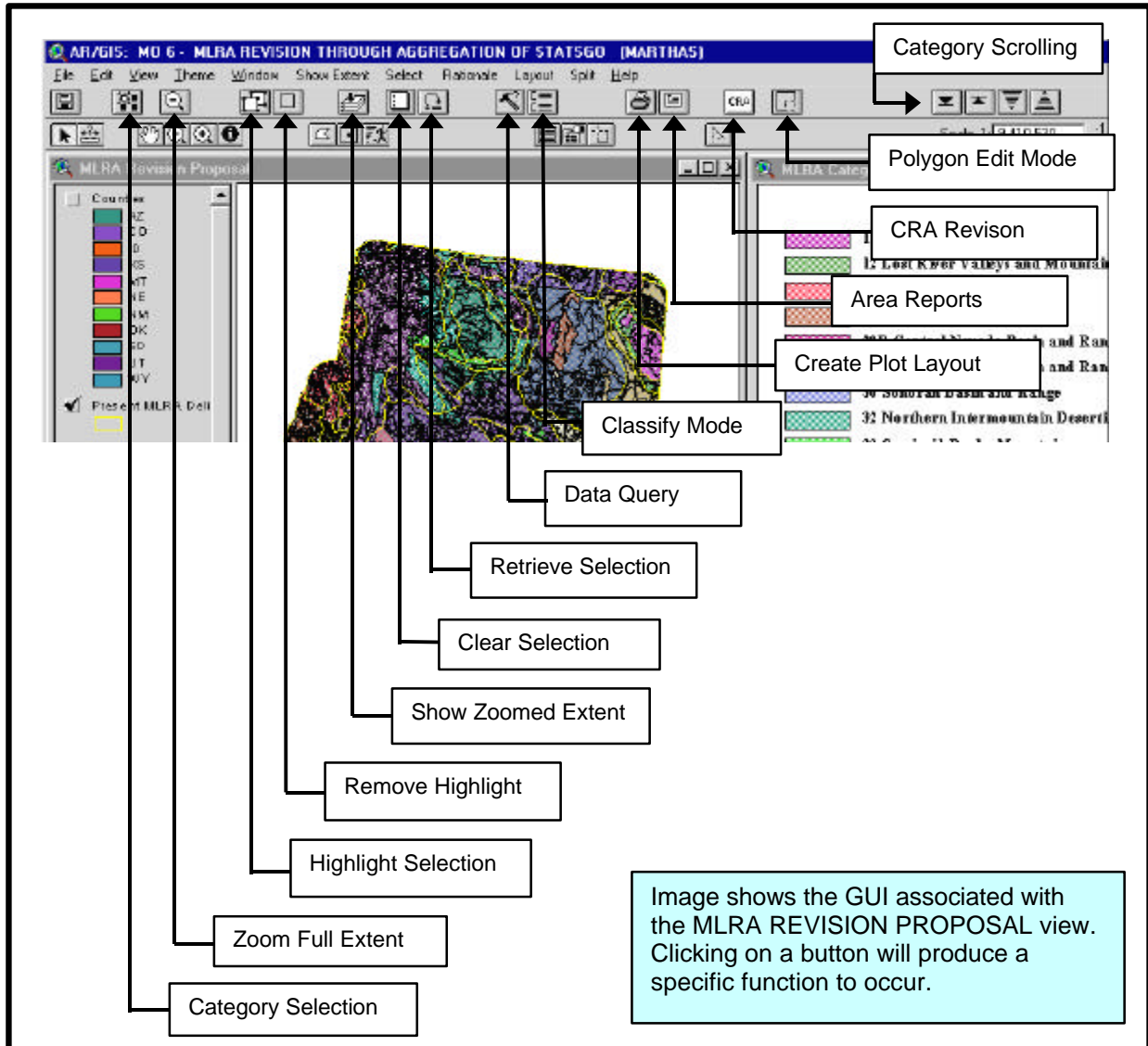


Figure 2.3-1. *MLRA Revision Proposal* buttons and labels.

2.3.1 Button Descriptions

Category Scrolling

Many MO's have 30 or more MLRA categories that make it difficult to view all MLRA categories at one time within the *MLRA Categories* view window. This feature allows the user to scroll up or down the MLRA selector polygons. There are four buttons associated with category scrolling: 1. *Scroll To Bottom*, 2. *Scroll Down Incrementally*, 3. *Scroll Up Incrementally*, and 4. *Scroll To Top*.

Polygon Edit Mode

Clicking on this button set the PRESENT MLRA DELINEATION theme to go into edit mode. The theme is in edit mode when you can see a dashed line around the theme check box.

CRA Revision

Allows the user to revise any MLRA PROPOSAL selection set to a user input CRA value. The user will be prompted to enter a CRA value.

Create Area Report

This feature allows the user to create different types of area reports. Refer to Section 9.4 for detailed descriptions and step by step processes for creating area reports.

Creates Plot Layout

Allows user to create layout output which includes the present zoomed area, location map, MLRA category legend, North arrow, scale bar, and title.

Set To Classify Mode

The same functionality is linked to the *Set To Classify Mode* item under the *Select* menu pulldown. Refer to section 2.2.2 - A for description of functionality

Theme Data Query

Allows the user to query the database table to make specific queries of the *MLRA Proposal* data set to make specific polygon selections. This function is a very powerful method of creating custom selection sets. The user is encouraged to use this as an important method of building *MLRA Proposal* polygon selection sets.

Clear Selection Set

Clears the selection set on features (points, lines, or polygons) for any data theme.

Retrieve Selection Set

Retrieves the **last** reclassified selection set. This allows the user to recover the last selection set if it was incorrectly classified.

Highlight Selection set

The same functionality is linked to the *Highlight Outlines of Selected Polygons* item under the *Select* menu pulldown. Refer to section 2.2.2 - F for description of functionality

Remove Highlight

The same functionality is linked to the *Remove Polygon Highlight* item under the *Select* menu pulldown. Refer to section 2.2.2 - G for description of functionality

Show Zoomed Extent

Allows the user to view the extent of the present zoom as a red highlighted rectangle overlaid on the MO boundary theme display in a separate view window

Zoom To Full Extent

Clicking this button automatically redraws the themes to the full extent of the data. Use this button when you want to display the entire data area.

Category Selection

The same functionality is linked to the *Select An MLRA Category* item under the *Select* menu pulldown. Refer to section 2.2.2 - D for description of functionality

Save Project File

The same functionality is linked to the *Save Project* item under the *File* menu pulldown. Refer to section 2.1.1 - A for description of functionality

SECTION 2.4 - MLRA Revision Proposal - TOOLS

There are twelve tools in the *MLRA Revision Proposal* view (figure 2.4 -1). Tools require user input by clicking in the view window, known as a “click event”. For example, if the

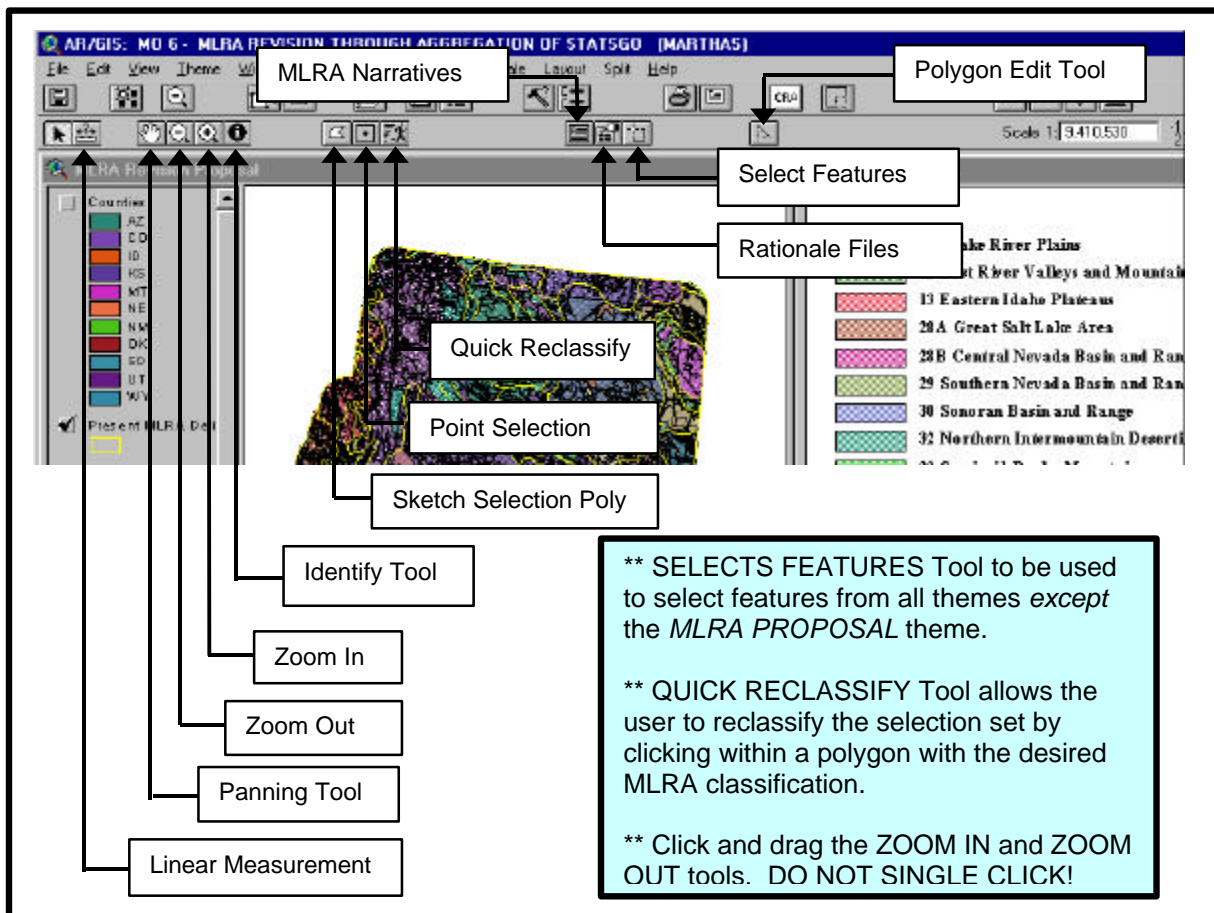


Figure 2.4 – 1 MLRA Revision Proposal tools and labels

user desires to select a group of polygons, then he/she can make a selection using the *Select Selection Polygon* item found under the *Select Polygons* menu pulldown, or the user can click on the tool labeled *Polygon Selection Tool* that has a icon image of a single polygon (figure 2.4-2, left most tool). Tools allow the user to circumvent the need to use the pulldown menus. A specific task is performed when a tool is activated. It is suggested that the user use the menu pulldown items as often as possible. When the user's proficiency with the MARTHAS system has improved, then begin to use the tools more often.

IMPORTANT: It is necessary for the user to be attentive concerning what tool in the tool bar is presently active. A tool is active when it appears to be “pushed in”. Figure 2.4-2 illustrates the active *Pointer Selection* tool (middle tool) and the adjacent inactive tools. With the *Pointer Tool* active, a polygon in the *MLRA Proposal* theme will be selected (or un-selected) with a user initiated click event inside the view window. The most common mistake regarding tools involves the user getting the wrong response from a click event. For example, during the process of selecting polygons for reclassification, the user will commonly utilize multiple tools, such as the *Panning* tool or *Zoom* tools, to aid in the selection process. The user then proceeds to select polygons, but inadvertently leaves another tool activated (for example the *Zoom Out* tool). As a result, when the user

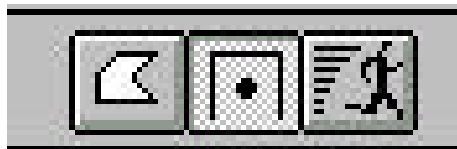


Figure 2.4-2. Illustration of activated and non-activated tools. The middle button appears “pushed in” or depressed (activated), while the two adjacent tools are non-activated tools

clicks within the view expecting to select a polygon, the *Zoom Out* function is initiated. This problem can be avoided if the user routinely scans the tool bar before proceeding with each MLRA revision activity.

2.4.1 Tool Descriptions

NOTE: An “PS” label after the tool title identifies those tools that are used in the polygon selection process. An “MQ” identifies tools that are particularly useful to the user for moving around theme data sets and querying theme attribute data. Refer to figure 2.4-1 to see the tool positions and icon symbols within the tool bar.

Linear Measurement

Allows the user to make quick linear measurements. Simply place the tool at the point to start the measurement, then go to the end measuring point and double click. The linear measure can be seen in the lower left of the ArcView window. It is also possible to get

linear measurements along a road or stream drainage. Place the tool at the start point on the road or stream and single click around curves and corners. Double click when finished to stop the measurement process. The total length of the linear feature can be seen at the lower left of the ArcView window.

Panning Tool (MQ)

The panning tool allows the user to quickly move across the data theme “landscape”. Simply click and hold down the mouse button and move in the desired direction to “pan” over to the new spatial location.

Zoom In (MQ)

Allows the user to quickly zoom in the data theme. **NOTE:** It is important to **click and drag the extent box**. ArcView will automatically zoom into the area within the area of the extent box. If the user only clicks once, the system may zoom in a great deal or even give an error message.

Zoom Out (MQ)

Similar to the *Zoom In* tool (see above) except it does the opposite. **NOTE:** It is important that the user **clicks and drag an extent box** and not single click with this tool. The smaller the *Zoom Out* extent box, the more the system will zoom out.

Feature Information (MQ)

The tool allows the user to quickly select on a specific polygon of other feature (lines and points) and identify the feature’s attribute information.

Sketch Selection Polygon (PS)

The same functionality is linked to the *Sketch A Selection Polygon* item under the *Selections* menu pulldown. Refer to section 2.2.2 - B for description of functionality.

Pointer Selector (PS)

The same functionality is linked to the *Select By Pointing* item under the *Selections* menu pulldown. Refer to section 2.2.2 - C for description of functionality

Quick Reclassify (PS)

Quick Reclassify is a short cut tool. It allows the user to change the classification of selected polygon(s) to an adjacent classification simply by clicking on a polygon of the desired classification. This tool was created to make the process of reclassifying island polygons quick and efficient to the adjacent majority classification.

Narrative File

The same functionality is linked to the *Show MLRA Category Narrative* item under the *Rationale* menu pulldown. Refer to section 2.2.3 - B for description of functionality

Rationale File

The same functionality is linked to the *Show MLRA Category Rationale* item under the *Rationale* menu pulldown. Refer to section 2.2.3 - A for description of functionality

Select Other Theme Features

This tool is designed to allow the user to select features (points, lines, and polygons) from all other themes **except** the *MLRA Proposal* theme.

Polygon Editing

Used to edit polygon line location for the PRESENT MLRA DELINEATION data theme. This function only works if the PRESENT MLRA DELINEATION theme is in edit mode by clicking on the *Start/Stop Polygon Editing* button (section 2.3.1)

SECTION 3.0 - Introduction to the *MLRA Categories* View GUI

Section 3.0 describes the system functionality found in the *MLRA Categories* view GUI. The purpose of the *MLRA Categories* view is to store the list of MLRA categories and is an integral part of the MLRA reclassification process. The *MLRA Categories* view must

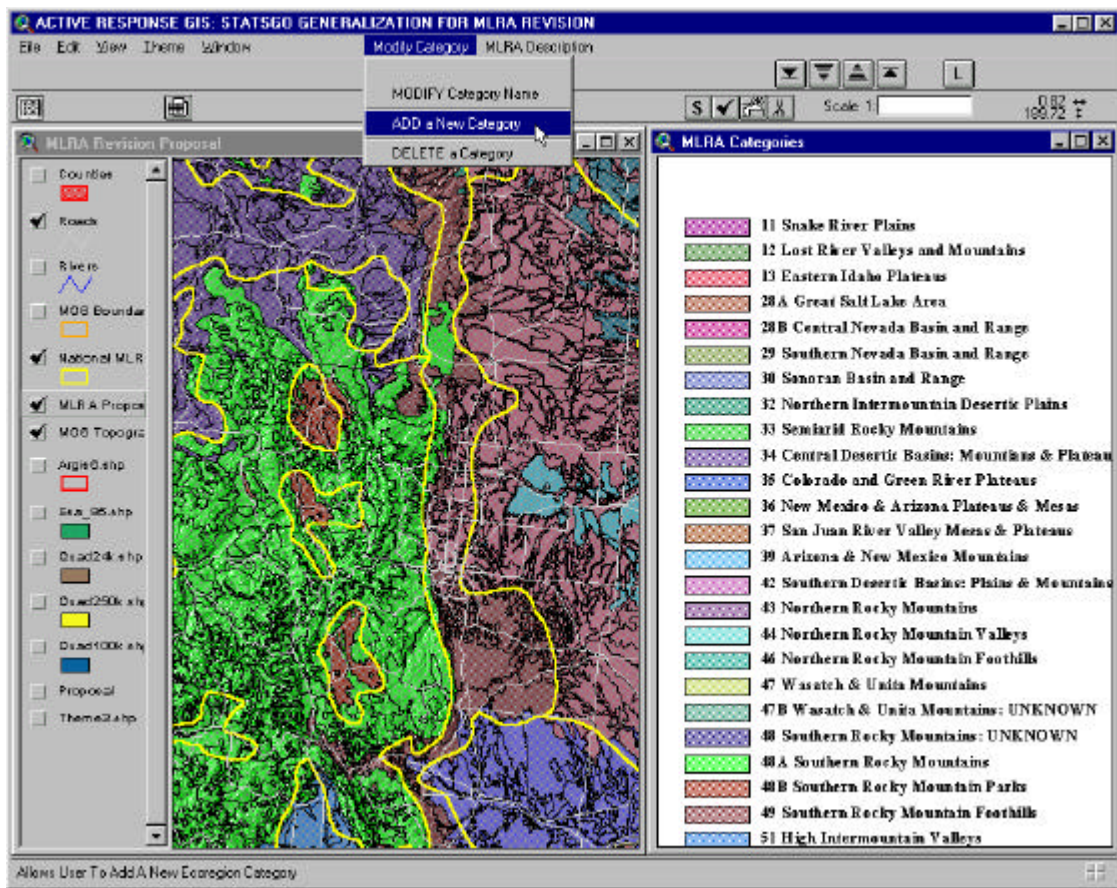


Figure 3.0-1. Example of the *MLRA Categories* view with the *Modify Category* pulldown activated.

be the “active” view in order to access its GUI. To make a view active, click on the top bar of the view window. The view bar will become highlighted and the unique pulldown menus, button, and tools will appear (figure 3.0-1).

SECTION 3.1: MLRA Categories ArcView Pulldown Functionality

These contain the same functionality found in the *MLRA Revision Proposal* view GUI. Please refer to **section 2.1** for functionality descriptions.

SECTION 3.2: MLRA Category MARTHAS Pulldown GUI Functionality

The following are brief descriptions of each MARTHAS menu pulldowns and associated items found in the *MLRA Category* view GUI. The GUI functionality under the *MLRA Categories* view is specifically designed to modify the MLRA categories selector theme. The menu pulldowns include: 1. *Modify Category*, and 2. *MLRA Description*.

3.2.1 MODIFY CATEGORY

There are three items under the *Modify Category* pulldown:

- A) *Add A New Category*,
- B) *Delete A Category*, and
- C) *Change MLRA Category Name*.

Item Description

A) *Add A New Category*

Adding a new category is a multi-step process. When the user clicks on the *Add A New Category* item, a new view pops up titled “Add New Legend Category”. Within this view are three colored square polygons. The left square is labeled “CHOOSE Color & Pattern”, the middle square is labeled “APPLY Color & Pattern”, and the right square is labeled “EXIT or Cancel” (refer to Section 9.1 for process description).

B) *Delete A Category*

Allows user to delete a single category from the *MLRA Categories* view. The user will be prompted to select on the category rectangle of the category to be deleted. **NOTE:** It is suggested that the user not delete categories unless an error has been made during the add category process. It is always a good idea to preserve all original categories.

C) *Modify MLRA Category Name*

Allows the user to modify or correct the an MLRA category title. The title is defined as the numeric code value and associated name (e.g., “47B Wasatch and Uinta Mountains”).

The user will be prompted to select on the category rectangle of the category to be modified. An input window appears for the user to retype the category title.

CAUTION: Changing the MLRA category title to a different category title does not changes the actual numeric code used to reclassify polygons. For example, the original MLRA category title was “47B Wasatch and Uinta Mountains” and the user changes the title to “11 Snake River Plains”. Any reclassification using this category will continue to use the “47B” numeric code.

3.2.2 MLRA DESCRIPTION

There is one item under the *MLRA Description* menu pulldown that allows the user to select on an MLRA category and retrieve its narrative file: A. *MLRA Description*.

Item Description

A) *MLRA Description*

Allows user to view an ASCII text file containing the description of the selected MLRA category. User selects the desired MLRA category from the *MLRA Categories* view. A text editor window will appear containing the MLRA description text file (ASCII).

SECTION 4.0 - How To Select Polygons

The first step in the 3 step MLRA revision process is creating a selection set of polygons (or polygon) that will be reclassified (refer to Section 5.0 for the 3 Step Reclassification Process). There are multiple methods for selecting polygons:

- A) *Single Polygon Selection (selecting one polygon at a time),*
- B) *Sketch A Selection Polygon,*
- C) *Select An MLRA Category,*
- D) *Select Within Present Zoomed Area,*
- E) *ArcView Data Query Builder, and*
- F) *Combination of Above Methods.*

SECTION 4.1 - Six Polygon Selection Methods

- A) *Single Polygon Selection (selecting one polygon at a time)*

The most common method for selecting polygons is using the “Pointer Selection” tool. This tool can be accessed through either the Pointer Selection item under the Select menu pulldown (section 2.2.2 - C), or the *Pointer Selection tool* found in the *MLRA Revision Proposal* view GUI (figure 4.1-1)

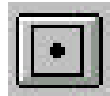


Figure 4.1-1. The *Select By Pointing tool*.

To use this tool, simply click once on the tool and it will appear “pressed in” (refer to section 2.4 and figure 2.4-2), or select on the *Select By Pointing* item under the *Select* menu. Next, single click inside the desired polygon. The system will automatically select and change the color of the selected polygon to a yellow highlight. An iterative process using this tool will result in multiple selected polygon in a very short time.

- B) *Sketch A Selection Polygon*

This tool allows the user to draw a polygonal area from which to select a desired group of MLRA polygons. This tool can be accessed through either the Sketch Selection Polygon item under the Select menu pulldown (section 2.2.2 - B), or the *Sketch Selection Polygon tool* found in the *MLRA Revision Proposal* view GUI (figure 4.1-2)



Figure 4.1-2. The *Sketch Selection Polygon tool*.

To use this tool, simply click once on the tool and it will appear “pressed in” (refer to section 2.4 and figure 2.4-2), or select on the *Sketch Selection Polygon* item under the *Select* menu. Next, **single click** at the starting point of the selection polygon. Continue to **single click** around the area to be selected. Once you have circled the area to be selected and are back at the starting point, **double click** to end the process. The system will then select all polygons that intersect with the selection polygon. All selected polygons will change to the yellow highlight.

C) *Select An MLRA Category*

Allows the user to select all polygons of the same MLRA classification. This is useful when the MLRA category itself needs to be changed or modified. This tool can be accessed through both the *Select An MLRA Category* item under the *Select* menu pulldown (section 2.2.2 - D), or the *Select An MLRA Category* **button** in the *MLRA Revision Proposal* view GUI (figure 4.1-3).



Figure 4.1-3. The *Select An MLRA Category* **button**.

A message box asking the user to “Select the desired MLRA category by clicking on the appropriate MLRA category box” appears. Click the *OK* button of the message box. Place the cursor in the *MLRA Categories* view and single click on the rectangular box of the desired MLRA category. The chosen MLRA category will be automatically selected from the *MLRA Proposal* theme and highlighted yellow.

D) *Select Within Present Zoomed Area*

Permits the user to zoom into and select polygons from zoomed extent area only. This function allows the user a greater degree of spatial selection of an MLRA category. This function can be accessed through both the *Select Within Present Zoomed Area* item under the *Select* menu pulldown (section 2.2.2 - E) found in the *MLRA Revision Proposal* view GUI. A message box asking the user to “Select the desired MLRA category by clicking on the appropriate MLRA category box” appears. Click the *OK* button of the message box to clear it. Place the cursor in the *MLRA Categories* view and click on the rectangular box of the desired MLRA category. The chosen MLRA category will be automatically selected from the *MLRA Proposal* theme and highlighted yellow.

E) *ArcView Data Query Builder*

The data *Query Builder* function is a powerful method of selecting polygons. The Query Builder is a dialog box where the user can specify selection criteria. The *Query Builder* can be accessed from a view or table. To access this function, click on the *Query Builder* button (figure 4.1-4) or the *Query* item under the *Theme* menu pulldown (section 2.1.4 - E) found in the *MLRA Revision Proposal* view GUI.



Figure 4.1-4. The *Query Builder* button.

Click once on the *Query Builder* button and the Query Builder dialog box will appear. Specific attribute and record expressions can be created allowing the user to very specifically select MLRA polygons (figure 4.1-5)

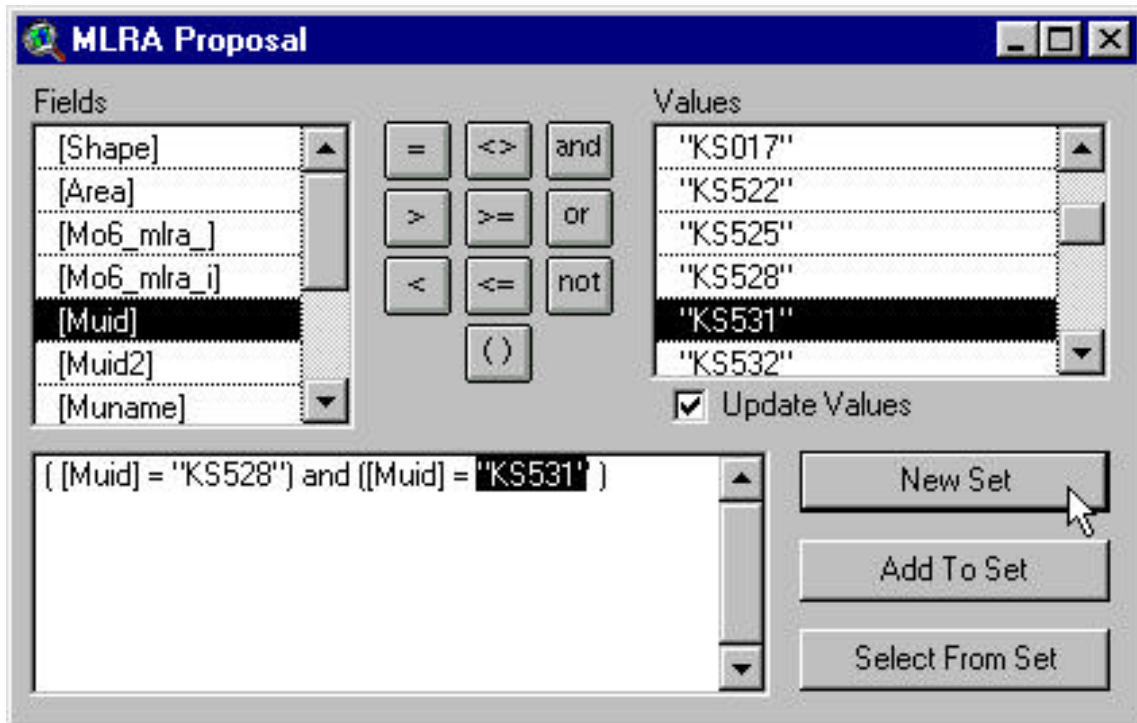
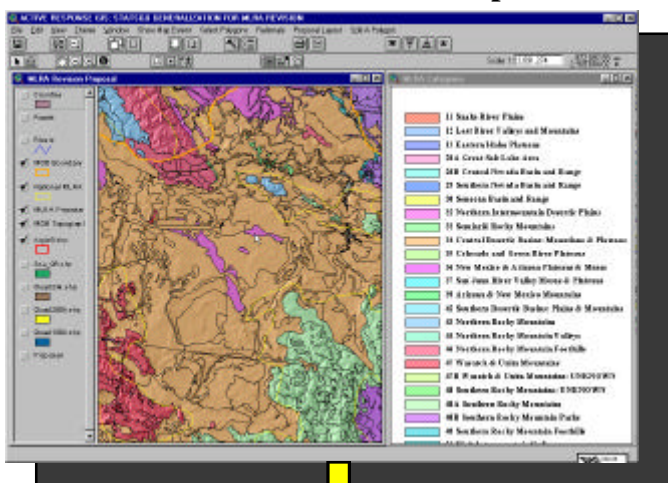


Figure 4.1-5. The Query Builder dialog box. In this case, the user has created an expression that will select all polygon records that have MUID codes of “KS528” and “KS531”. The user then single clicks on the “New Set” button to create a new selection set from the theme table.

The Query Builder allows the user to select specific polygon records from an existing selection, add additional selection to an existing selection set, or create a new selection set. It is suggested that the user read additional ArcView manuals and tutorials to fully utilize this powerful querying function.

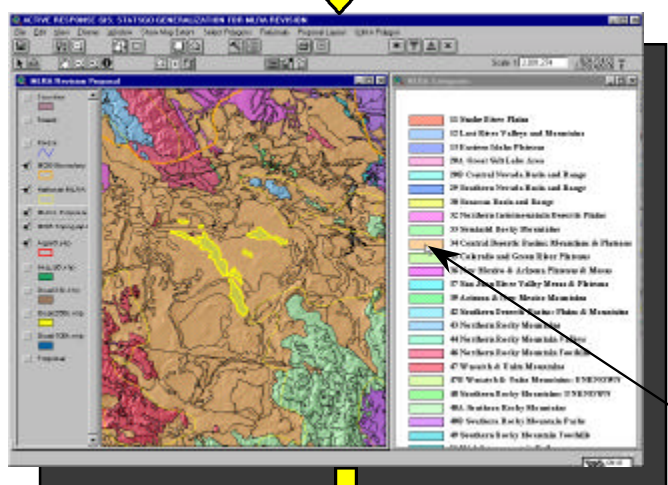
F) *Combination of Above Selection Methods*

Employing two or more of the above selection methods can greatly assist the selection process. For example, the user can use the *Sketch A Selection Polygon* tool, then use the *Select By Pointing* tool to refine the selection. The user can then use the *Query Builder* and add to the selection set by clicking on the “Add To Set” button in the Query Builder dialog box. The user, of course, will become more proficient with experience.



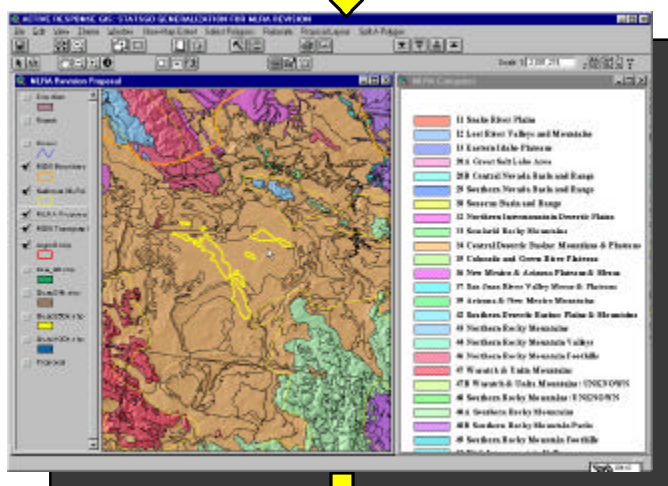
STEP 1A

The User examines the STATSGO-designated MLRA data theme using custom AR/GIS query functions as well as ArcView's Panning, Identify, and the Zoom tools and buttons. Users can quickly and efficiently examine the MLRA data sets in context with reference data to gain thorough understanding of the landscape and MLRA delineation's. Users may then identify and select the polygon(s) to be reclassified.



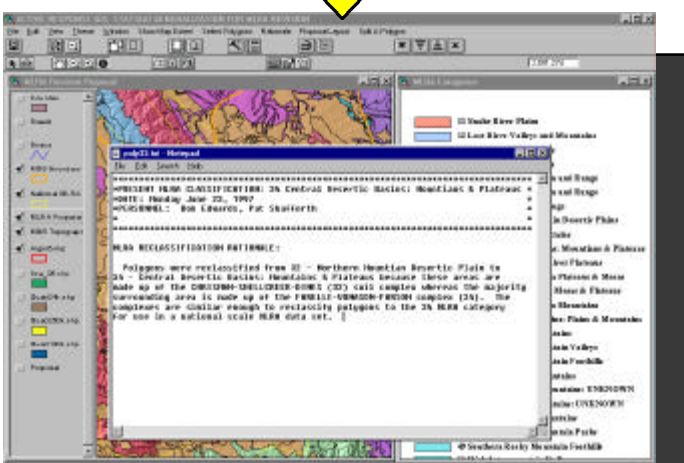
STEP 1B

Using customized MLRA polygon selection functions and/or the ArcView Query Builder utility, Users can create specific polygon selection sets containing one or multiple polygons. These selection sets represent polygons the soil scientist may choose to reclassify based on his/her analysis of all data. When the user has finished creating a selection set of polygons, the next step is to change the MLRA classification of the selection using the AR/GIS "Smart Shapes" functionality.



STEP 2

The User points and clicks on the desired MLRA category "Smart Shape" located in the *MLRA Categories* view document (right view). Each record of the selection set is automatically updated with the new classification in the feature theme database table. Simultaneously, the MLRA proposal view (left view) displaying the STATSGO theme is updated with the new reclassification. Next, the User is ready to create his/her reclassification rationale.



STEP 3

The User is prompted to create a short description of the reason, or reasons, for each completed reclassification. The "rationale" text file name is automatically assigned and incorporated into the feature theme database table for each record in the reclassification selection set. All changes and rationale may then be traced to the soil scientist(s) who created them.

SECTION 6.0 - Important Information About The MARTHAS System

The user may, at some point, need to load, modify, or update the MARTHAS system. As a result, a conceptual understanding is necessary. This section describes shapefiles and the directory layout of the MARTHAS system.

SECTION 6.1 - What Is An ArcView Shapefile?

A shapefile is the ArcView GIS format for storing locational and attribute information for geographic features. There are three files that make up a single Arcview shapefile; **1)** The spatial data file (**.shp** extension, e.g., *mlra6.shp*), **2)** The tabular data file (**.dbf** extension, e.g., *mlra6.dbf*), and **3)** the link file that acts as the pointer between the spatial and tabular files (**.shx** extension, e.g., *mlra6.shx*). When copying an Arcview shape file from one sub-directory to another, all three files must be copied together. Arcview will not recognize it as a data theme without all three files.

There are three commonly used methods to create a shapefiles in ArcView; **1)** create from existing ArcView shapefiles, **2)** create an empty shape file and add features, and **3)** convert an Arc/Info coverage to a shapefile. The most common method for obtaining shapefile data is converting from existing Arc/Info data collected from NRCS GIS personnel.

SECTION 6.2 - MARTHAS Directory Structure

Much of the MARTHAS system functionality is made up of custom Arcview AVENUE program scripts. One of these scripts (*eco.Startup*) contain global variables that designate pathways to specific sub-directories used by the MARTHAS system. Figure 6.2-1 shows the required sub-directory structure including the eight directories under the *argis* sub-directory; **A) *aprs*, B) *cat_rat*, C) *data*, D) *legends*, E) *narratives*, F) *poly_rat*, G) *reports*, and H) *saveprop*.** During the initial installation of the MARTHAS system, the user will need to modify the *eco.Startup* script containing the global pathway variables to match the system pathway of the computer being loaded (Section 7.2, Steps 6 - 9)

The system pathways will be different for each MO or operating system. For example, a UNIX system pathway to the *mo6_mlra.shp* shapefile found in the **data** sub-directory may appear something like this:

```
/datasets/avdata/mlra/argis6/data/mo6_mlra.shp
```

Likewise, on a PC operating system, the pathway may look something like this:

```
c:\projects\mlra\argis6\data\mo6_mlra.shp
```

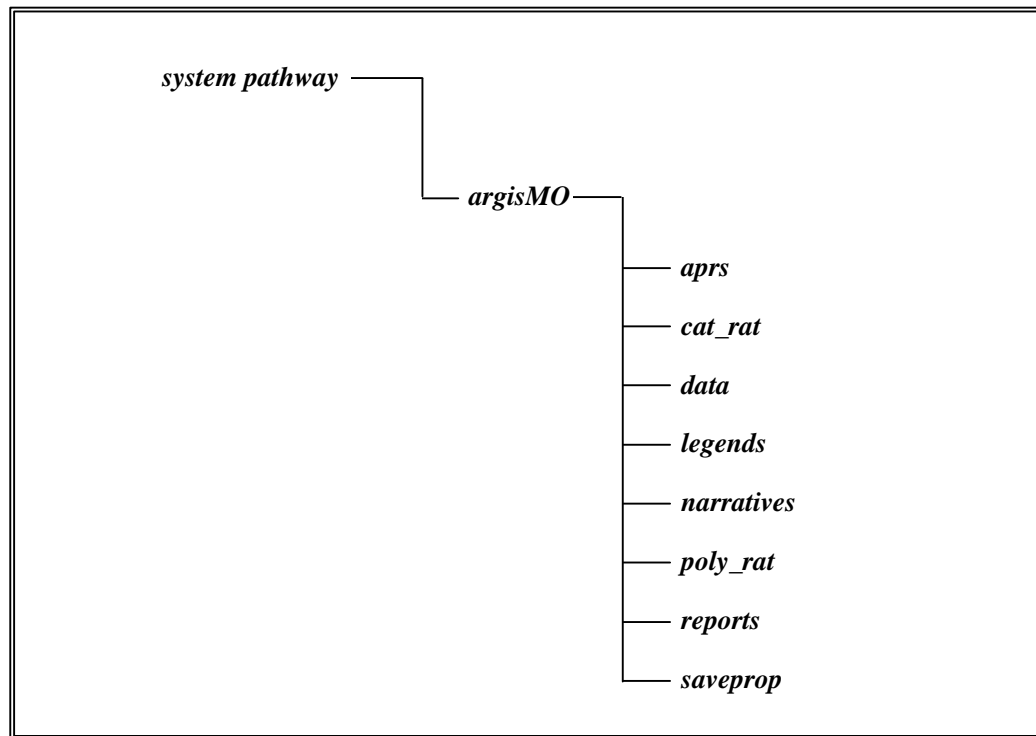


Figure 6.2-1. Required sub-directory structure for the MARTHAS system

SECTION 6.3 - MARTHAS System Sub-Directories Descriptions

The following are brief descriptions of each sub-directory under the *argisMO* sub-directory (figure 6.2-1) including the data they contain and/or their specific use in the MARTHAS system.

A) *aprs*

The *aprs* sub-directory contains the project file(s) associated with the MARTHAS system (e.g., *argis6.apr*). Other ArcView project files can also be saved to this directory. For example, if the user wanted to create a new MARTHAS system for the state of Colorado. The user would select the “**Save As**” item under the *file* pulldown and save the new ArcView project filename to the *aprs* sub-directory (e.g., *co_mlra.apr*).

B) *cat_rat*

The *cat_rat* sub-directory contains ASCII text files containing rationale about each MLRA category. This differs from the rationale files in the *poly_rat* sub-directory as these files are physical descriptions about the MLRA category. All of these ASCII files have a “.txt” extension.

C) *data*

The *data* sub-directory contains all the necessary Arcview shape files and Arc/Info coverage files (e.g., hillshade topography) that enable the user to complete the MLRA revision. At a minimum, the MARTHAS system will operate with the following data files:

- 1) the STATSGO MLRA shapefile (e.g., *mo6_mlra.shp*)
- 2) the MLRA category selector shapefile (*select.shp*)
- 3) the modify MLRA categories shape file (*newclass.shp*)
- 4) the MO extent shape file that shows present zoomed extent (*extent.shp*)

If any of these files are missing, the MARTHAS system will not function properly. Additional shape and Arc/Info coverage files that complete the system and contain contextual spatial data include:

- 1) the hillshade DEM Arc/Info raster coverage (e.g., *mo6_shade*)
- 2) streams and roads (e.g., *mo6_strms.shp* and *mo6_roads.shp*)
- 3) Land use/land cover file (e.g., *mo6_lulc.shp*)
- 4) National MLRA - 7.5 million scale (*nmlra.shp*)

IMPORTANT: The Arc/Info hillshade topography file (e.g., *mo6_shade*) is an important coverage. The hillshade topography file is a raster data set that displays the MO topography in a realistic shaded relief. This permits a greater contextual understanding of the MO land forms and can greatly aid the user when making MLRA revisions. Notice, however, this data is stored as a sub-directory (e.g., *mo6_shade*) and not an individual file. This is due to the fact that the topography file is an Arc/Info coverage. Arc/Info uses a sub-directory structure to store the spatial and tabular data.

D) *legends*

The *legends* sub-directory contains the legend file (*mlra.avl*) that holds the parameters for color and pattern symbols of each legend class. You can recognize an legend file because it has a “.avl” extension. Arcview allows the user to create custom legends and save them to a specific legend file names

E) *narratives*

The *narratives* sub-directory holds ASCII files containing the description of each MLRA category. These files are accessed through the **MLRAs** theme shape file table. Each MLRA category narrative is from the NRCS handbook *Land Resource Regions and Major Land Resource Areas of The United States* (Agriculture Handbook 296)

F) *poly_rat*

This sub-directory contains all rationale files the user creates during the process of MLRA revision. A rationale file is created for each MLRA re-classification. These files contain the date, personnel, and reasoning for the re-classification. The rationale filename is automatically assigned and incorporated into the feature theme database table(.dbf) for each record in the reclassification selection set. An identical set of polygon rationale files is saved to the **saveprop** subdirectory to become part of the finished MLRA Revision data exported to the NSSC office.

G) *reports*

The reports sub-directory contains all saved area reports generated by the user. The reports are ASCII text files with a “.txt” filename extension.

H) *saveprop*

This directory contains the MLRA PROPOSAL and PRESENT MLRA DELINEATION backup shapefiles revision proposals, as well as all polygon rationale files created during the revision process. All data and text files in this directory is sent to the NSSC office once the MLRA revision has been completed. The best to send the finished data is to create either a compressed TAR file (UNIX) or a WINZIP file (PC).

SECTION 7.0 - Loading The MARTHAS System

This section describes the manual process of loading the MARTHAS system onto any selected computer platform either for the initial loading or reloading. **NOTE:** Refer to Section 9.6 for MARTHAS auto-loading. Reloading may be necessary if the project file gets corrupted or accidentally deleted, or if the user wants to create a new MARTHAS system using another data set.

Initially, the MARTHAS system comes in a compressed UNIX **tar** file format. The compressed tar file has a “.tar.Z” extension (e.g., *mo6.tar.Z*). The tar file contains all the sub-directories and all required data under the sub-directories (Section 6.2). Un-tarring the tar file will automatically load the MARTHAS directory and sub-directories into the present system location. For example; Before un-tar: */datasets/avdata/mlra/*, and after un-tar: */datasets/avdata/mlra/argis6*

The new *argis6* directory would contain the eight MARTHAS sub-directories and associated data as described in Section 6.2. Section 7.1 describes the step by step process for creating a working MARTHAS system starting from the compressed tar file format. If the tar file has already been downloaded and un-tarred, then skip to Step 4.

SECTION 7.1 - Initial Loading of the MARTHAS System (UNIX)

- Step 1:** Copy the compressed tar file to the proper directory location (section 7.0).
- Step 2:** Uncompress the MARTHAS tar file: (e.g., %*uncompress mo6.tar.Z*)
- Step 3:** Un-tar the MARTHAS system tar file: (e.g., %*tar -xvf mo6.tar*)
- Step 4:** Start ArcView 3.0 and click on the *Open Project* item under the *File* menu pulldown. Browse to the *aprs* sub-directory, click on the project file name, then click on the *OK* button (figure 7.1-1). ArcView will load up the MARTHAS

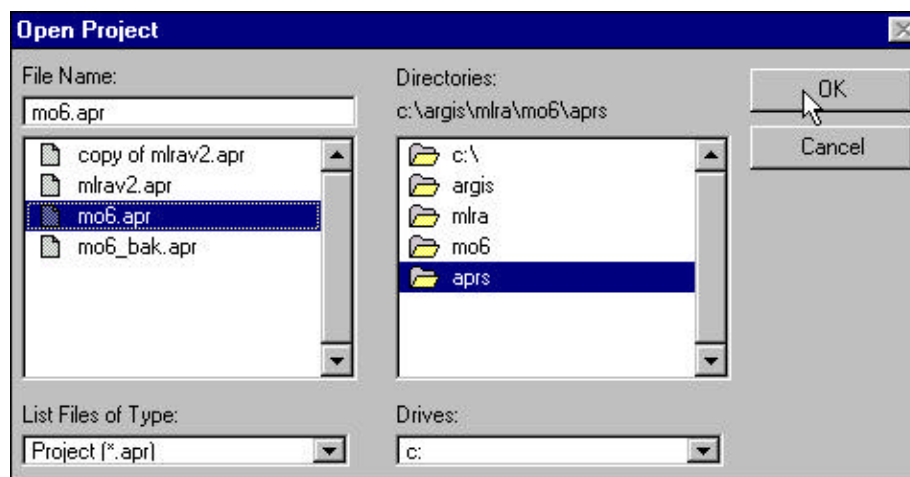


Figure 7.1-1. *Open Project* dialog box. User browses to the MARTHAS project file found under the *aprs* sub-directory, selects the MO project file, and click the OK.

system with two blank views. At this point you can begin the three step auto-loading sequence.

SECTION 7.2 - Three Step Auto-Loading Sequence

The auto-load capability is the latest installment of the MARTHAS program. There are three steps involved in the auto-load process include:

- 1) Change MARTHAS Pathway Globals,
- 2) Load MARTHAS Data Themes, and
- 3) Load Legend Selector Theme.

SECTION 7.2.1 Change MARTHAS Pathway Globals

Step 1: Select the Change Pathway Globals item under the Layout menu pathway (figure 7.2.1-1). A message box will appear stating that this function will change the pathway strings found in the *eco.Startup* script. Select the OK button to clear the message box.

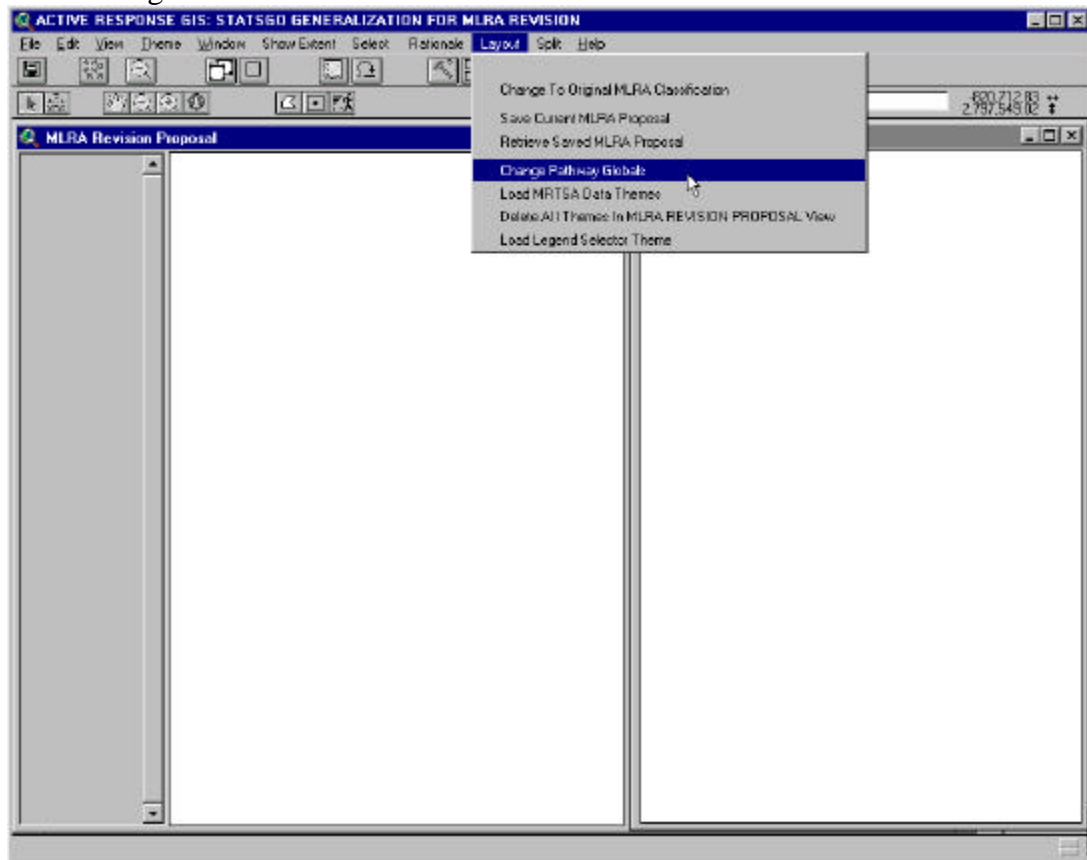


Figure 7.2.1 - 1. To begin the MARTHAS auto-load process, select the *Change Pathway Globals* item under the *Layout* menu pulldown

Step 2: Another message box titled “Remember To End New String With A Slash” appears (figure 7.2.1-2). The title message is important because the MARTHAS system will not be able to find the proper directory unless the new pathway string ends with a slash (“\”). In the UNIX operating systems, the slash would be a forward slash (“/”). Enter the new pathway string on the input line and, when correct, click once on the *OK* button

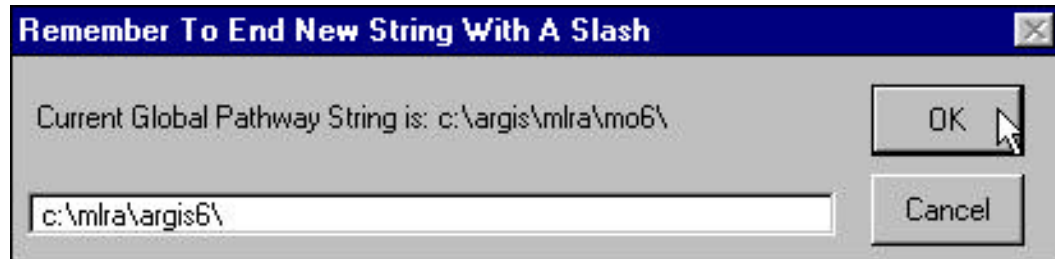


Figure 7.2.1-2. The input dialog box. Enter the new pathway string on the input line and, when correct, click once on the *OK* button

Step 3: The MARTHAS system will then automatically update the system pathways to the user defined pathway. You will see a series of windows turning off and on as the system pathways are updated.

SECTION 7.2.2 Load MARTHAS Data Themes

Step 1: Select the *Load MARTHAS Data Themes* item under the *Layout* menu pulldown. This will immediately start the process of loading relevant themes found in the data sub-directory. The system will not load themes that were not part of the original data sets. If a theme was added to the data sub-directory at a later time, the user will need to manually load those themes (refer to Section 8.1 - *Adding A Shapefile Theme*). If the system cannot find the data themes, then the global pathway strings in the *eco.Startup* script are probably incorrect. If this is the case, repeat the steps for changing the global pathway strings in the previous section (Section 7.2.1).

SECTION 7.2.3 Load Legend Selector Theme

Step 1: Select the *Load Legend Selector Theme* item under the *Layout* menu pulldown. The Legend Selector theme will immediately load into the *MLRA Categories* view. If the system cannot find the data themes, then the global pathway strings in the *eco.Startup* script are probably incorrect. If this is the case, repeat the steps for changing the global pathway strings in the previous section (Section 7.2.1).

SECTION 7.3 - Reloading A Backup MARTHAS Project File

This section describes the steps to reload the MARTHAS system the MARTHAS project file is corrupted or accidentally deleted. **NOTE:** It is very important to regularly save a backup MARTHAS project file (e.g, mo6.apr). It is suggested that a backup project file be saved at least every day during the MLRA revision process. The trouble saved in the long run far outweighs the short-term annoyance of saving updated project backups.

Step 1: Copy the backup MO project file (e.g., mo6_bak.apr) to the previous name (e.g, mo6.apr).

Step 2: Start Arcview.

Step 3: Click on the file pulldown and select the “open project” item. Select the MO project file from the *aprs* sub-directory and click on the “OK” button

Step 4: If the project has been saved fairly recently, the entire project should load up and continue as normal. Few of the previous changes made during the revision process will be lost.

SECTION 7.4 - Creating a New MARTHAS Project

This section describes the process of incorporating a custom *MLRA Proposal* shapefile, (other than the MO STATSGO data set) into the MARTHAS system. There are specific modifications on the new shapefile table that will need to be completed in order for it to be used in the MARTHAS system. These modifications include adding four additional fields to the new theme table.

IMPORTANT: This step by step description assumes; **1)** the new MLRA theme was clipped from the original MO MLRA data theme (check the new MLRA shapefile table for a field titled “**mlra96**”. If the “mlra96” attribute exists, the data theme will operate in the MARTHAS system), and **2)** The same legend selector theme will be used for the new MLRA revision theme (the *MLRAs* theme located in the *MLRA Categories* view). If the new theme is different, then a new legend selector theme (and table) will need to be created.

Step 1: Open the MARTHAS system. Go to the *File* menu pulldown and select the “**Save As**” item. Save the new project file to a meaningful name (e.g., *colorado.apr*). The “Save As” function will automatically load the new project.

Step 2: Activate the *MLRA Revision Proposal* view (left view window) by clicking on the top bar of the view.

Step 3: Next, locate the theme titled *MLRA Proposal* in the theme table of contents and click on the theme to activate it. The theme is active when it appears raised.

Step 4: Go to the *Edit* pulldown and select the “delete theme” item. This will delete the active theme in the active view. The theme should then disappear from the theme table of contents.

Step 5: Add the new .MLRA shapefile (refer to section 8.1)

UPDATE NEW TABLE

Step 6: Bring up the table of the new theme. Single click on the *Table* item under the *Theme* menu pulldown. The table window document will now appear, complete with the table GUI.

Step 7: With the table as the active window, go to the *Table* menu pulldown and single click on the *Start Editing* item. This will allow the user to add the four required fields to the new shapefile table. If you are uncertain whether the table is presently in edit mode or not, simply click on the *Table* menu pulldown and check to see if the item title is “*Start Editing*” or “*Stop Editing*”. If it is titled “*Start Editing*” then the table is not in edit mode.

Step 8: Click on the *Edit* menu pulldown. Single click on the *Add Field* item and a *Field Definition* dialog box will appear (figure 7.4-1). Enter “mlra96name” in the name input line, select type input “String”, and change the width to “50”. Make sure the *Field Description* input appears the same figure 7.3-1. When this input is finished, click the *OK* button and the *mlra96name* field will be automatically added to the end of the table

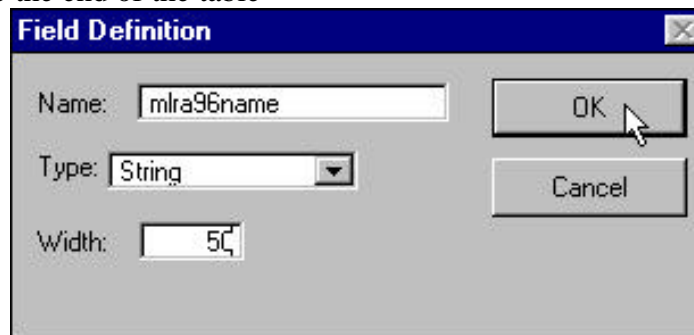


Figure 7.4-1. Field Definition for the new *mlra96name* field

Step 9: Repeat step 8, but this time add a field named “rationale” that is Type “String” with a Width of “16” (Figure 7.4-2).

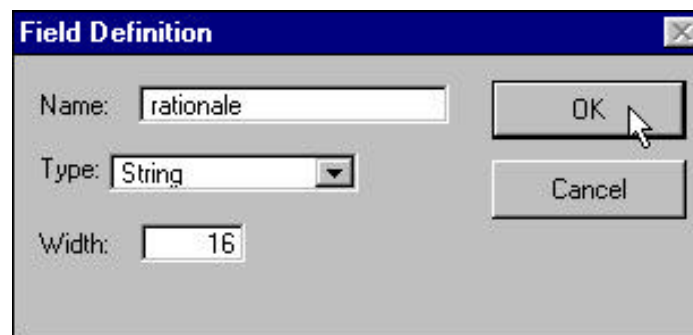


Figure 7.4-2. Field Definition for the new *rationale* field

Step 10: The next field to add is a numeric field. Enter “split_poly “ in the Name line, field Type is “Number”, a Width of 16, and “0” Decimal Places (figure 7.4 -3).

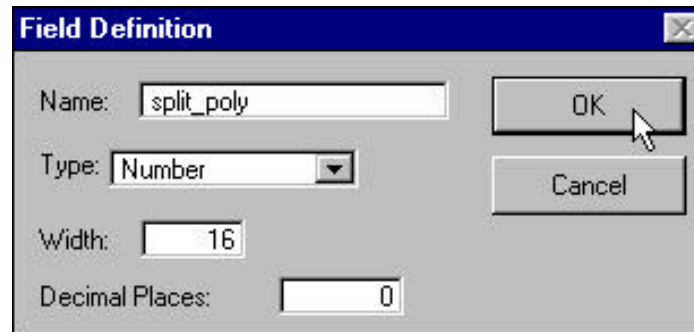


Figure 7.4-3. Field Definition for the new *split_poly* field.

Step 11: Repeat step 10 with the field Name “original”, of Type “Number”, a Width of “16”, and “0” Decimal Places (figure 7.4 -4).

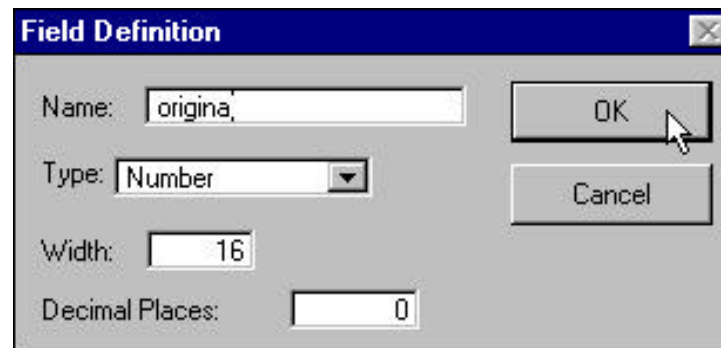


Figure 7.4 -4. Field Definition for the new *original* field

- Step 12:** Click on the *Table* menu pulldown and single click on the *Stop Editing* item. This will bring up another dialog box that asks the user if they want to save the table edits saved. Click the “Yes” button. The four new fields have now been added to the table.
- Step 13:** Close or Quit out of the *Table* document window. You should be back in the *MLRA Revision Proposal* view GUI.
- Step 14:** Change the name of the new MLRA theme to “**MLRA Proposal**” (Section 8.3) and load the MLRA legend file (*mlra.avl*) to the new MLRA theme (Section 8.4).
- Step 15:** The last step is to populate the “mlra96name” field with the with the MLRA category names. To do this, click on the *Layout* menu pulldown and select the *Change To Original MLRA Category*. A dialog box titled “Are You sure?” will appear asking the user if they want to continue because this procedure will erase any previous MLRA revisions. Click the “Yes” button. Another dialog box will appear asking the user if they want a copy of the present proposal made before all records are re-labeled with he original MLRA category value. Click the “No” button. The process of re-labeling takes from 10 - 30 minutes

depending on the size of the data set. When the re-labeling has completed, the MARTHAS system should be ready to use.

SECTION 8.0 - Basic ArcView Operations

This section describes some important ArcView activities the user may need throughout the MLRA revision process. These include adding themes and modifying legends

SECTION 8.1 - Adding A Shapefile Theme

- Step 1:** Activate the view you want the new theme to be placed in by clicking on the top bar of the view
- Step 2:** Go to the **View** pulldown and select the *Add Theme* item. An *Add Theme* menu box will appear (figure 8.1-1). Browse through the sub-directories to find the desired theme. Notice at the bottom left of the *Add Theme* dialog box there is a “Data Source Types” heading above a small outlined box. This allows the selection of either *Feature Data Source* or *Image Data Source* files. *Feature*

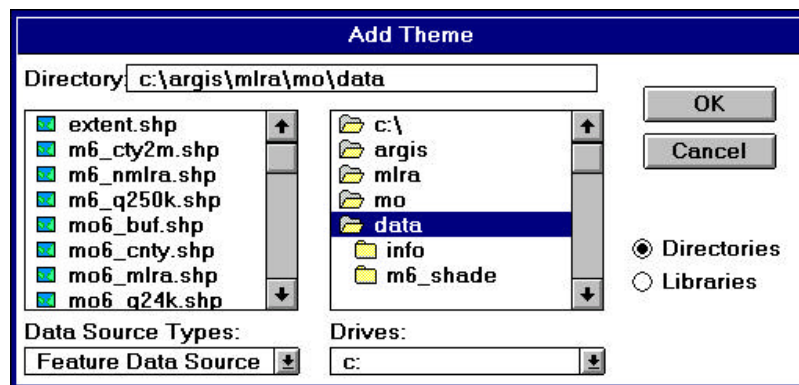


Figure 8.1-1. The “Add Theme” dialog window with ArcView shape files.

Data Source includes both Arcview shape files (.shp extension) or Arc/Info coverage files. *Image Data Source* files include Arc/Info GRID coverage's or graphic files such as .bip and .gif picture files.

- Step 3:** Click on the desired theme file and then click on the *OK* button in the upper right of the *Add Theme* dialog box. This will automatically add the theme to the active view at the top of the theme TOC. The newly added theme will not, however, be visible in the view because the theme display has not been activated.
- Step 4:** To make the theme visible click on the small raised box in the upper left of the theme and a check mark will appear. The theme will then display in the view window.

SECTION 8.2 - Adding Arc/Info Coverage Themes

Step 1: Activate the view into which the Arc/Info coverage theme(s) will be added.

Step 2: Go to the **View** pulldown and select the *Add Theme* item. An *Add Theme* menu box appears (see figure 8.2-1). Browse through the sub-directories to find the desired Arc/Info theme.

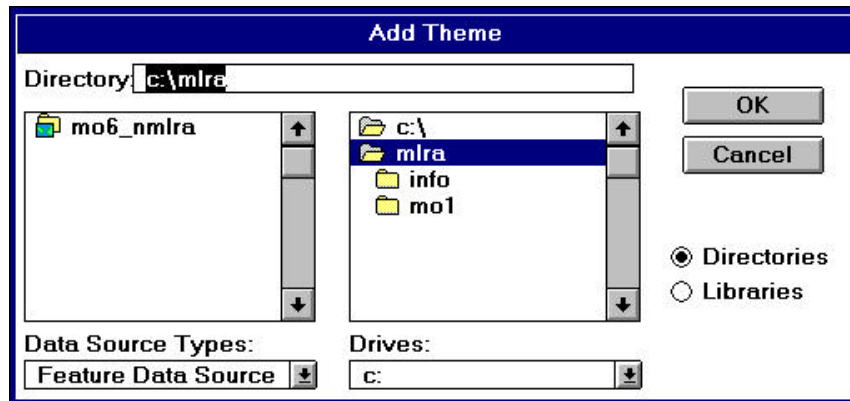


Figure 8.2-1. Add Theme window with an Arc/Info polygon coverage theme.

Step 3: Note that the Arc/Info polygon coverage has a different icon symbol (figure 7.4-1) than an ArcView shapefile (compare figure 7.4-1 to figure 8.2-1). Click on the icon of the desired Arc/Info coverage. Additional sub-icons are displayed. If the Arc/Info coverage is a polygon coverage, you will see at least two sub-icons labeled "polygon" and "label point" (figure 8.2-2). Click on the icon labeled "polygon" and click the *OK* button. Arc/Info coverage themes that are line or point data will have the same type of icons as a ArcView shapefile (figure 8.1-1).

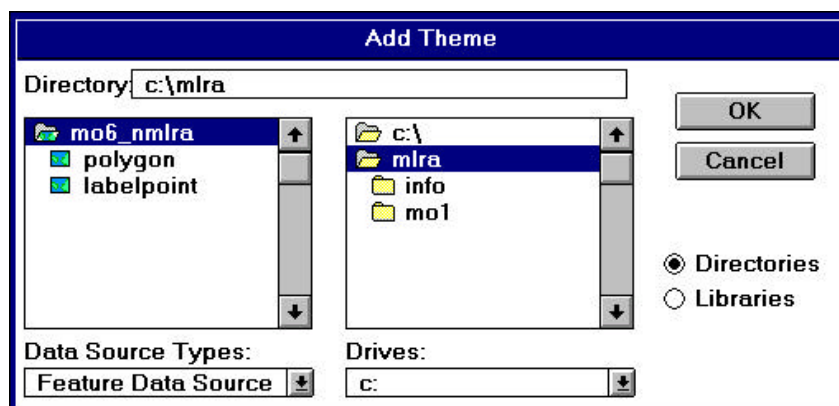


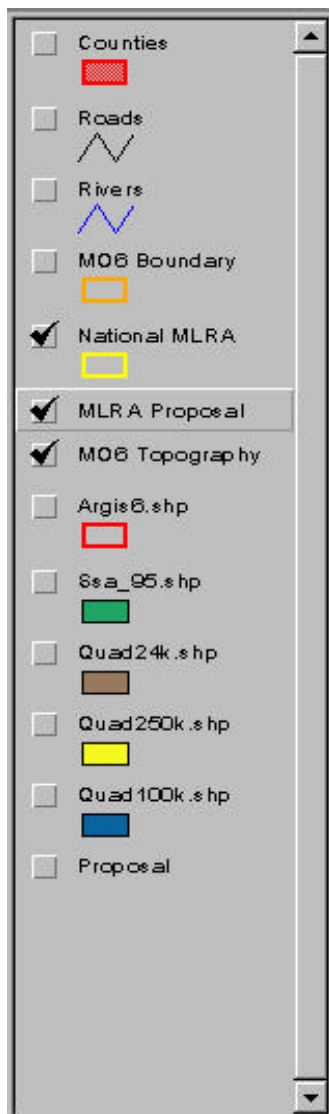
Figure 8.2-2. The sub-icon choices of adding an Arc/Info coverage theme.

Step 4: The Arc/Info coverage theme is automatically added to the active view at the top of the TOC.

Step 5: To make the theme visible, single click on the small raised box in the upper left of the theme and watch for a check mark to appear. If there is a check mark, then the theme will be visible in the view.

SECTION 8.3 - Changing Theme TOC Name

Step 1: Activate the theme whose name will be changed. To activate the theme, single click on the present theme name. When the theme appears raised, it is the active theme. In figure 8.3-1, the active theme is the theme titled *MLRA Proposal*



Step 2: Click on the *Theme* menu pulldown and select the *Properties* item. This will bring up the *Theme Properties* dialog box (figure 8.3-2). The *Theme Properties* contains the present theme name, the pathway to the shapefile, along with other data about the theme.

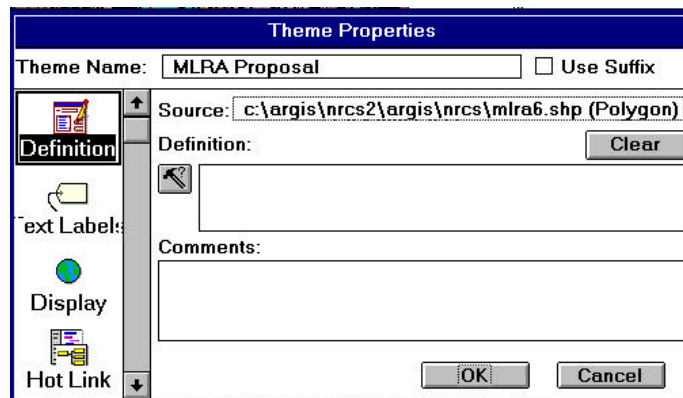


Figure 8.3-2. Theme properties dialog window

Step 3: At the top left of the *Theme Properties* dialog box is the input line for the *Theme Name*. Highlight the present name and type in the new theme name and click the *OK* button. Typically a newly added theme name in the TOC is the shapefile name (e.g., “mlra6.shp”). However, the shapefile name may not be descriptive enough. To change the TOC name, the user would type a more appropriate title in the *Theme Name* input line and click the *OK* button. For example, the initial TOC theme name was “mo6bnd.shp”, but a more descriptive TOC name might be “MO6 Boundary”.

Figure 8.3-1. The theme titled “MLRA Proposal” is the active theme. It is active when it appears raised

SECTION 8.4 - Loading The Saved MLRA Proposal Legend File

Section 8.4 describes the process of loading the *MLRA Proposal* legend file. The user may need to go through this process if a new MLRA data set is added to the MARTHAS system (section 7.3) or the legend is accidentally changed.

Step 1: Activate the *MLRA Proposal* theme. Double click on the theme name to bring forth the **Legend Editor** dialog box. Single click on the “Load” button found at the top right of the Legend Editor (figure 8.4-1). This will activate a *Load Legend* file browser window (figure 8.4-2).

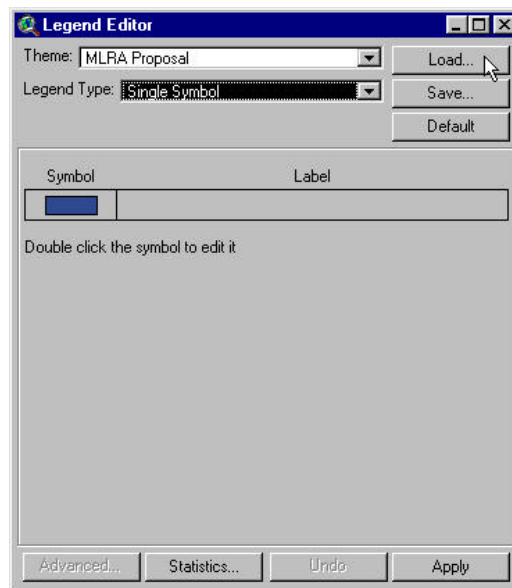


Figure 8.4-1. The Legend Editor dialog box.

Step 2: Browse to the *Legends* sub-directory and select the *mlra.avl* legend file, and click the *OK* button (figure 8.4-2). This begins the process of loading the legend file.

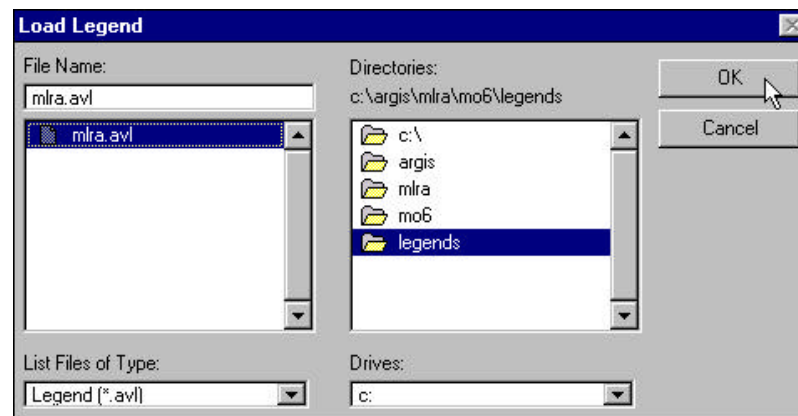


Figure 8.4-2. Browse to the Legends sub-directory and select the *mlra.avl* legend file using the Load Legend dialog window.

Step 3: Another *Load Legend* window will appear showing the field the legend is based on. This field should default to the “mlra96” field. In addition, the “All” option should have a check mark indicating that all classes and symbols will be used. Click the **OK** button to accept these parameters (figure 8.4-3).

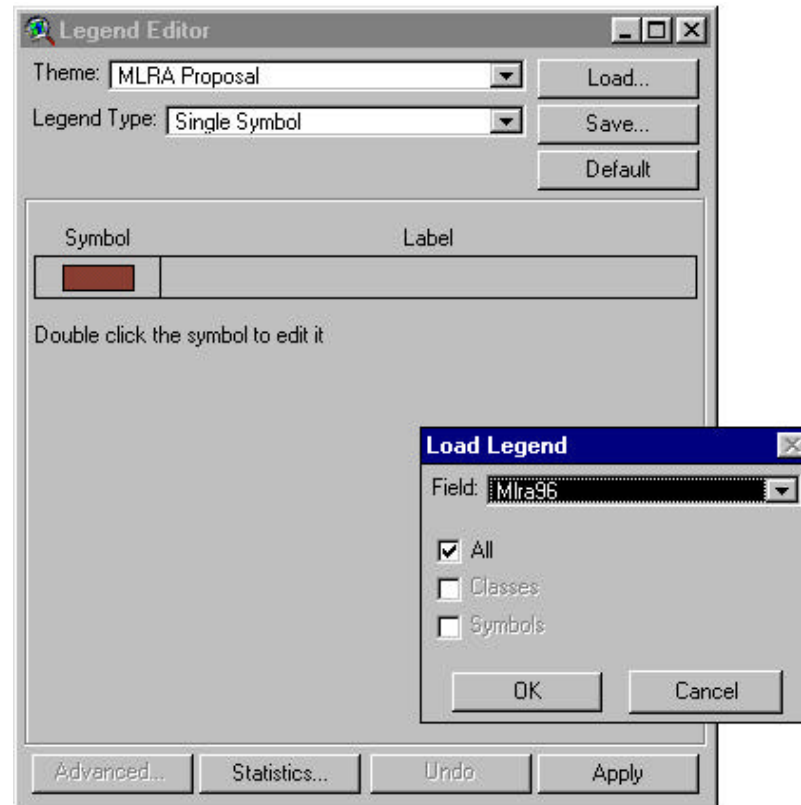


Figure 8.4-3. Click the *OK* button in the small Load Legend dialog box

Step 4: Within the Legend Editor, the new legend will appear. Notice that all the MLRA categories are listed along with the new symbols for each MLRA category (figure 8.4-4). This allows the user to see the new legend before actually incorporating it to the theme legend in the view. All MLRA category symbols are transparent colors that allow the user to see the hill shade topography below. Click on the “**Apply**” button (located in the lower left of the Legend Editor dialog window). This will cause the new legend to be incorporated to the *MLRA Proposal* theme. ArcView will automatically redraw the theme with the new legend. Please refer to the ArcView Help or ArcView manuals about modifying theme legends. ArcView 3.0 has a powerful legend editing capability that the user would be advised to explore.

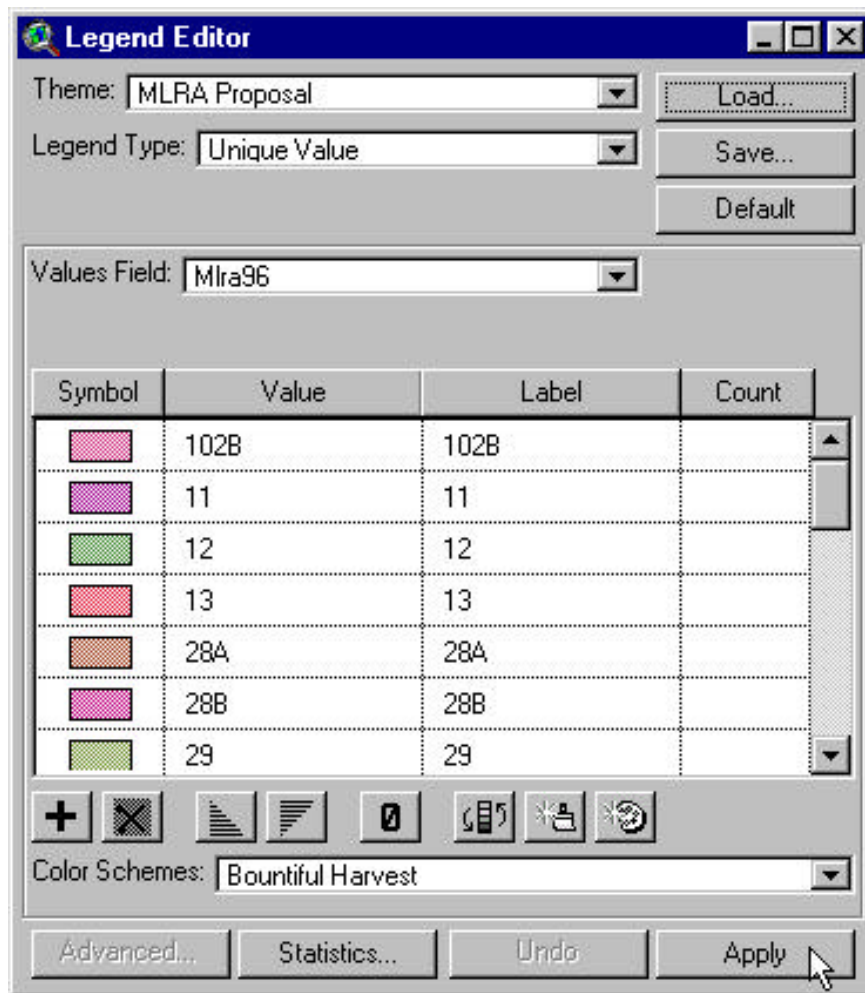


Figure 8.4-4. The legend file is loaded into the Legend Editor. This allows the user to see the new legend before actually incorporating it to the theme legend in the view. Click the “**Apply**” button to load to view.

SECTION 8.5 - Modifying MLRA Proposal Legend

Step 1: To modify the legend of the *MLRA Proposal* theme, double click on the theme name in the theme table of contents located on the left side of the view window to bring up the Legend Editor (figure 8.5-1 Left). To change a legend symbol (color, pattern, or outline symbols), double click on the symbol box to access the *Palette Editor* window (figure 8.5-1 Right). Click on the *Fill* button at the top of the *Palette Editor* window to access the palette of available patterns.

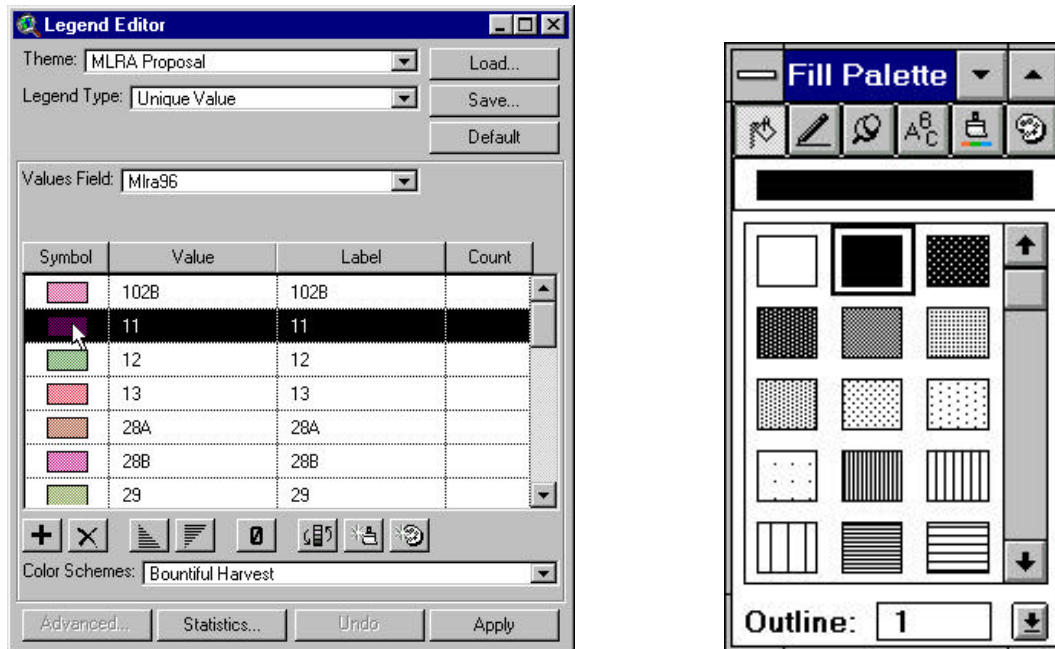


Figure 8.5-1. Left - The Legend Editor. Right - Double clicking on *Symbols* initiates the Palette dialog window showing the palette dialog box and the default solid pattern (2nd column, 1st row).

Step 2: For the purposes of the MLRA revision project, the transparent fill symbol (2nd column on the 2nd row) is the preferred choice (figure 8.5-2 Left). Next, click on the second to last button with colored paintbrush icon to display the color palette (figure 8.5-1 Right). Scroll to and click on the desired color. The new color/pattern will change within the Legend Editor while remaining unchanged in the theme legend in the table of contents (TOC) until the user single clicks on the **Apply** button in the lower right of the *Legend Editor* window. The theme should now have the updated the color symbols in the theme TOC.

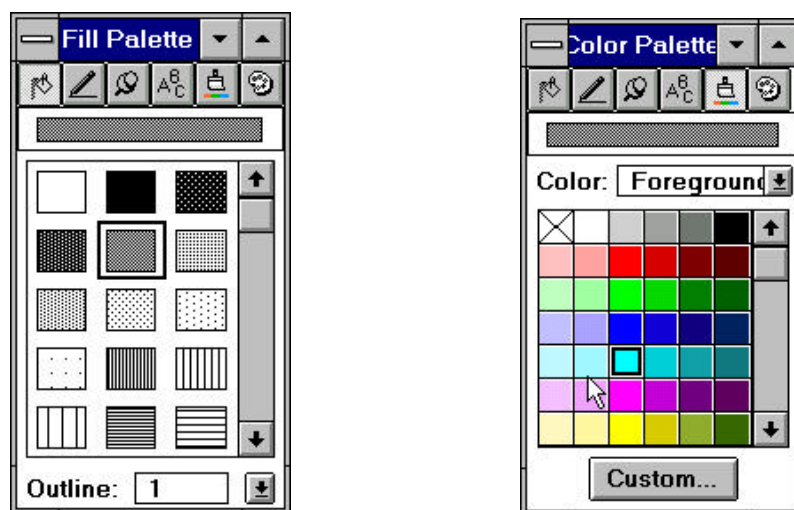


Figure 8.5-2. Left -The transparent pattern symbol (2nd row of the 2nd column) will allow the topography to show through the classification color. Right - The available color palette

SECTION 8.6 - Saving a Theme's Legend

- Step 1:** Double click on the theme name in the theme table of contents (TOC) of the desired theme. The Legend Editor dialog window will appear (figure 8.5-1 Left).
- Step 2:** If necessary, modify the theme's legend (section 8.5). Click on the *Save* button to save the legend of the selected theme. The *Save Legend* dialog box appears (figure 8.6-1).

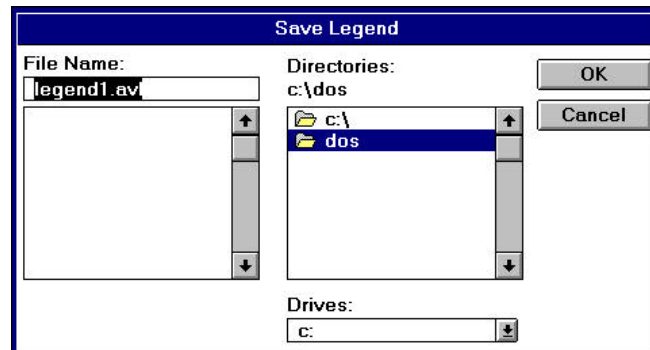


Figure 8.6-1. The “Save Legend” dialog box. Allows user to save anywhere on disk.

- Step 3:** Browse to the *legends* sub-directory and enter the name of the saved legend file in the *File Name* input line. Click the *OK* button and the legend file will be automatically saved to the *legends* directory. The new legend file can be *Loaded* to the theme at any time.

SECTION 9.0 - Additional MARTHAS Functionality

This section will describe specific MARTHAS functionality. This functionality includes adding, deleting, and modifying MLRA categories, creating different area reports, and the process for splitting a polygon.

SECTION 9.1 - Adding A New MLRA Category

Step 1: Make *MLRA Categories* the active view.

Step 2: Select the *Add A New Category* item under the *Modify Categories* menu pulldown. A view titled “**Add New MLRA Category**” will appear (figure 9.1-1). This view contains three squares labeled “**CHOOSE**” (left - green), “**APPLY**” (middle - cyan), and “**EXIT**” (right - red).

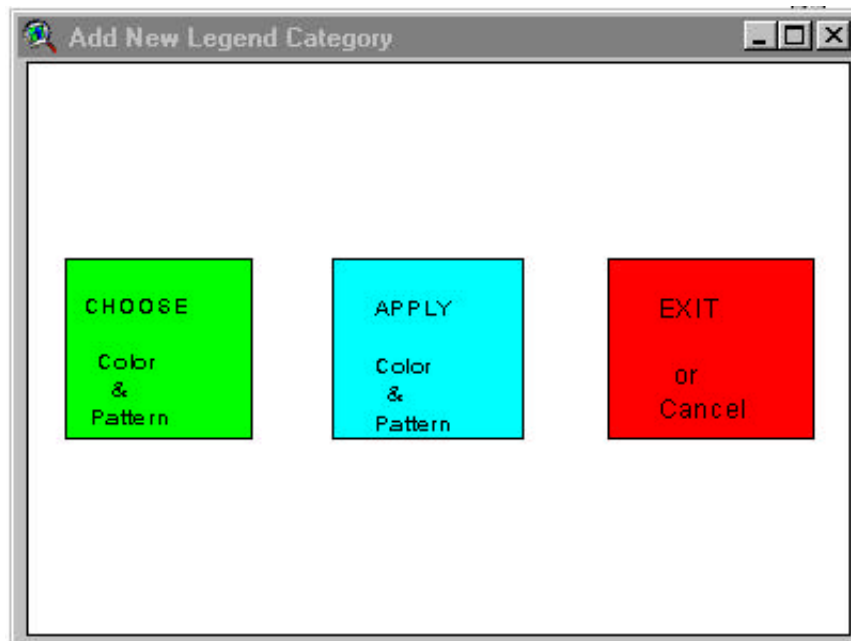


Figure 9.1-1. Example of the “Add New Legend Category” view that pops up after selecting the *Add A New Category* item under the *Modify Category* menu pulldown.

Step 3: Single click on the “**CHOOSE**” square. This will bring up the ArcView *Color Palette* dialog box (figure 9.1-2). The user selects the color and pattern for the new MLRA category. Remember to make the color transparent in order to make the underlying hill shade topography visible through the MLRA category color. Select the desired color, then click on the left most top button to get the *Fill Palette*. Select on the middle fill pattern of the second row to make the legend symbol transparent. Continue onto Step 4 when the legend color and fill pattern have been selected.

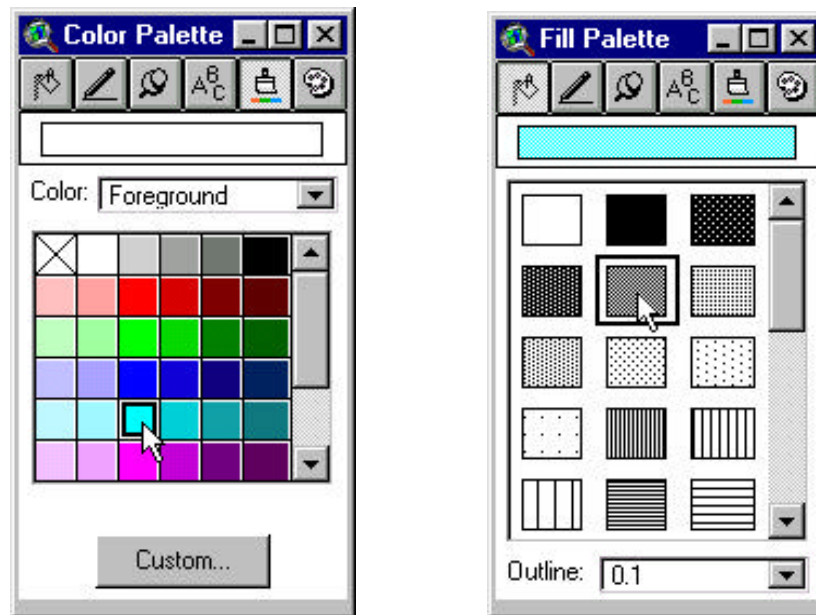


Figure 9.1-2. The *Color* and *Fill* Palettes. These palettes allow the user to create the legend symbol for the new MLRA category. Select the desired color, then click on the left most top button to get the Fill Palette. Select on the middle fill pattern of the second row.

- Step 4:** When the legend color and fill pattern have been selected, single click on the “**APPLY**” square. This will set the chosen color and pattern for the new MLRA category legend symbol.
- Step 5:** An input dialog box will appear and prompt the user to enter the new MLRA category code/title (e.g. “48A Southern Rocky Mountain Parks”). Click the *OK* button when completed. Another dialog box will prompt the user to enter only the category code (e.g., “48A”). Click on the *OK* button when completed. Finally, the user will be prompted to enter a description of the new MLRA category similar to the descriptions found in the *Land Resource Regions and Major Land Resource Areas of the United States* (USDA Handbook 296). A text edit window will appear so the user can type in the appropriate information.
NOTE: Remember to save the text edit document
- Step 6:** The final step is simply to click on the “**EXIT**” square. This will exit the user out of the add category mode. The MLRA categories list in the *MLRA Categories* view will automatically update the new category as will the legend for the *MLRA Proposal* theme in the *MLRA Revision Proposal* view.

SECTION 9.2 - Deleting An MLRA Category

Allows the user to select and delete any MLRA category from the *MLRA Categories* view. **SUGGESTION:** Don’t delete original existing MLRA categories. Use the *Delete An MLRA Category* function only when an MLRA category was incorrectly added using the *Add An MLRA Category* function (Section 9.1).

- Step 1:** Single click the *Delete An MLRA Category* item from the *Modify Categories* menu pulldown. A message box titled “Are You Sure” will appear.
- Step 2:** Click on the “Yes” button. Another message box will appear that describes the process for deleting an MLRA category. Click on the *OK* button to clear the message box.
- Step 3:** Move the mouse cursor into the *MLRA Categories* view and single click on the rectangle of the MLRA category to be deleted. The MARTHAS system will automatically delete the MLRA category from the *MLRAs* theme and update the *MLRAs* theme legend.. It also automatically deletes and updates the legend in the *MLRA Proposal Theme (MLRA Revision Proposal view)*.

SECTION 9.3 - Modify An MLRA Category Name

Allows the user to modify any MLRA category title from the *MLRA Categories* view. This function allows easy update and/or correction of the MLRA category title.

CAUTION: This function only changes the MLRA category title, not the MLRA code (refer to Section 3.2.1-C)

- Step 1:** Single click the *Modify Category Name* item from the *Modify Categories* menu pulldown. A message box titled “Are You Sure” will appear.
- Step 2:** Click on the “Yes” button. Another message box will appear that describes the process for changing an MLRA category title. Click on the *OK* button to clear the message box.
- Step 3:** Move the mouse cursor into the *MLRA Categories* view and single click on the MLRA category rectangle. This action will select the MLRA category. An input dialog box will appear that allows the user to enter the correct MLRA category title (figure 9.3-1). Click the *OK* button when finished. The MARTHAS system will automatically update the category title in the *MLRA Categories view*.

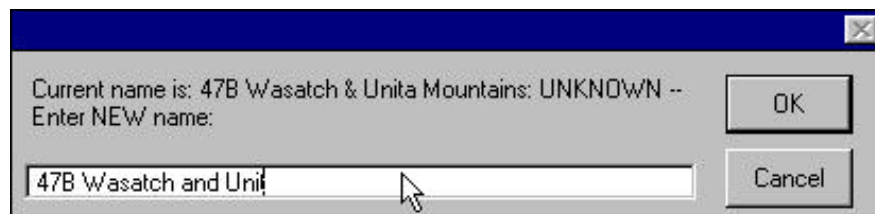


Figure 9.3-1. Modify MLRA Category Name input dialog box.

SECTION 9.4 - Creating Area Reports

The area report generation functionality allows multiple area reports to be created. The types of reports include a simple total area of a single MLRA category within the MO area, area of all categories, listing of MLRA categories within a selected county or counties, or area of land use/land cover within a selected MLRA category (NOTE: this requires the ArcView Spatial Analyst extension). Click on the Report Generation button (figure 9.4.0-1) to access the report generation functions.



Figure 9.4.0-1. The *Area Report Generation* button

9.4.1 Area Report Of A Single MLRA Category

Step 1: Click on the *Area Report Generation* button and the *Select MLRA Report Type* dialog box will appear (figure 9.4.1-1)

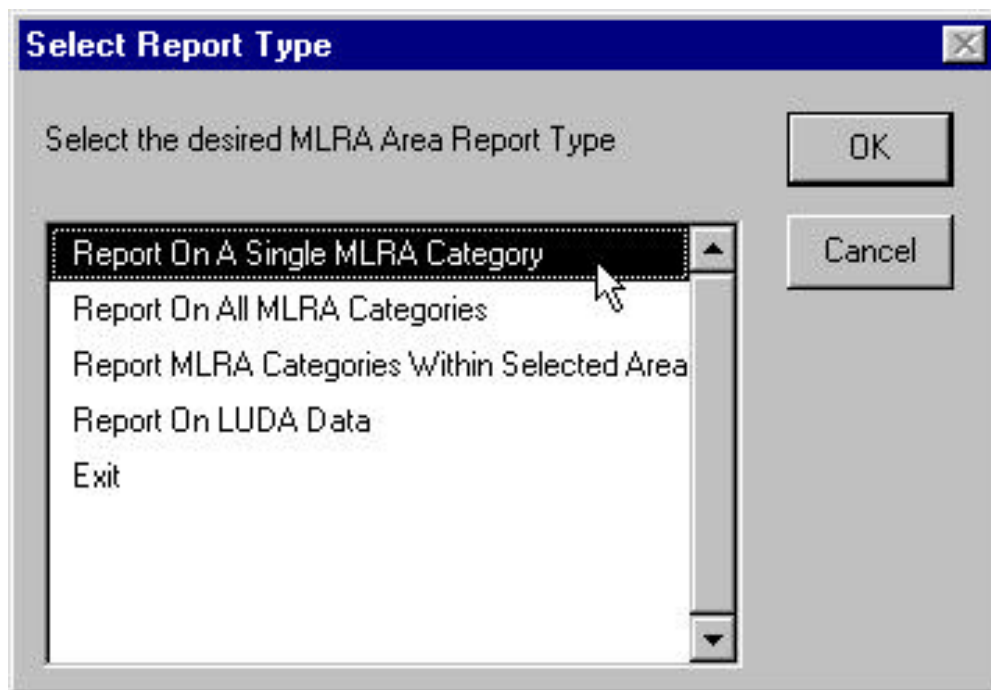


Figure 9-4.1-1. The *Select MLRA Report Type* dialog box

Step 2: Highlight the Report On A Single MLRA Category option and single click on the OK button (figure 9.4.1-1).

Step 3: A message box will appear asking the user to click on the desired MLRA

category (from the *MLRA Categories* view). Click on the *OK* button to clear the message box.

Step 4: Click on the desired MLRA category from the *MLRA Categories* view.

Step 5: A message box will appear with the name of the selected MLRA category. Click on the *OK* button to clear the message box.

Step 6: Another message box will appear asking the user if they want the report saved to a file. Selecting the “No” button will create a screen only output (figure 9.4.1-2).

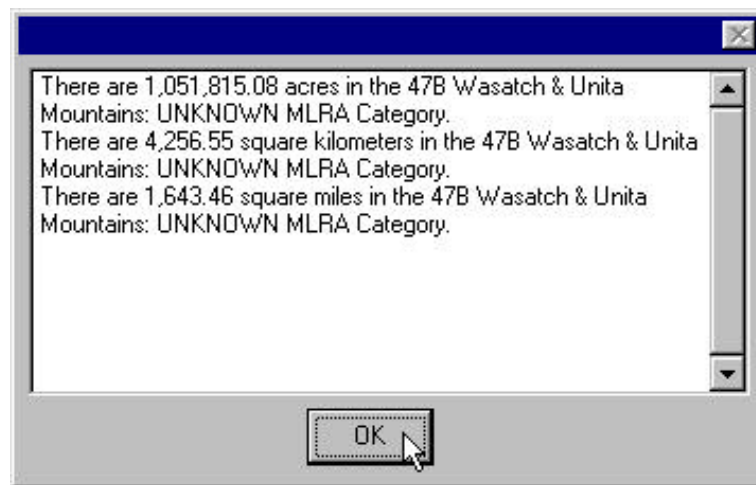


Figure 9.4.1-2. Screen only output for the single category report generator

Selecting the “Yes” button will bring up a *Create Area Report File* dialog box that is automatically set to the *reports* sub-directory (figure 9.4.1-3). Enter a file name in the *File Name* input line in the dialog box and click on the *OK* button.

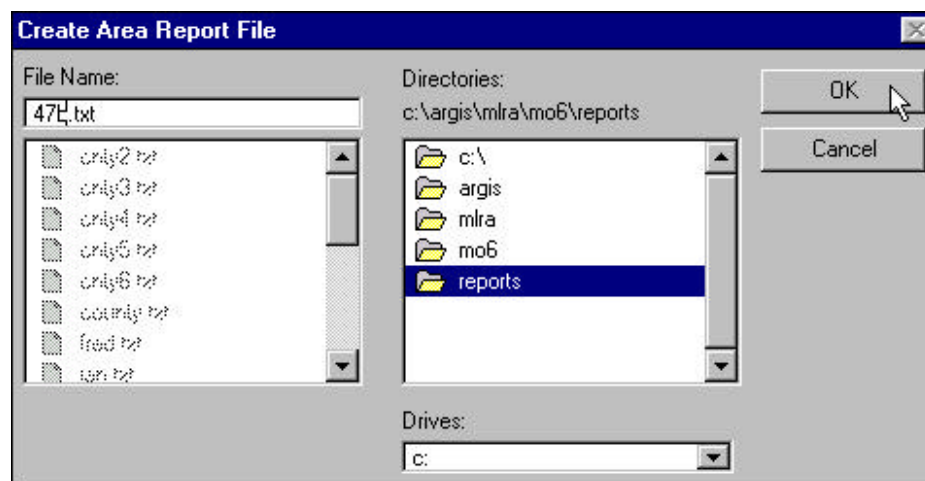


Figure 9.4.1-3. The *Create Area Report File* dialog box. Enter the name for the report file and click on the *OK* button to save a text file of the area report.

A text editor window will appear containing the date, MLRA Category title and area calculations presented in square kilometers, square miles, and acres (figure 9.4.1-4).

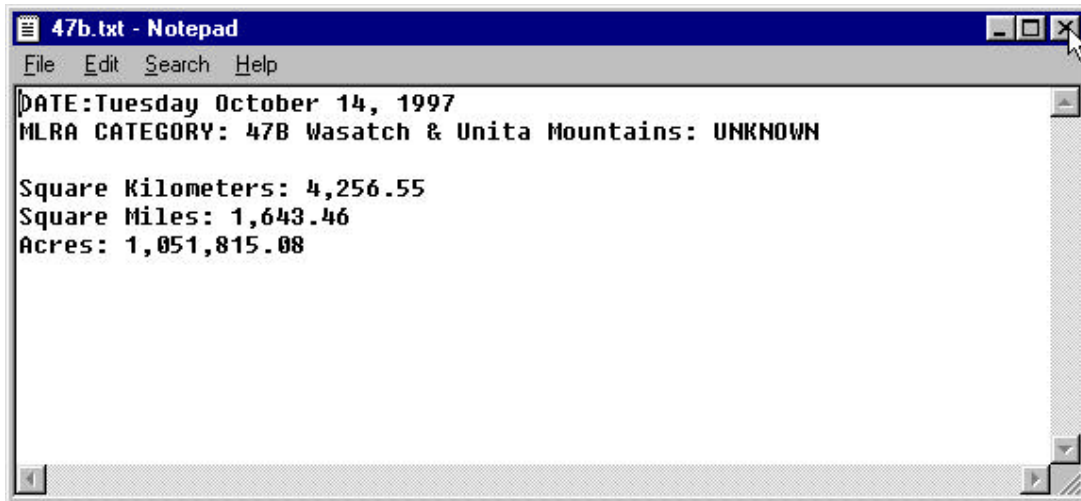


Figure 9.4.1-4. Text editor showing the saved report file. The report file contains the date, MLRA Category title and area in square kilometers, square miles, and acres

9.4.2 Area Report For All MLRA Categories

Step 1: Click on the *Area Report Generation* button (figure 9.4.0-1) and the *Select MLRA Report Type* dialog box will appear (figure 9.4.2-1).

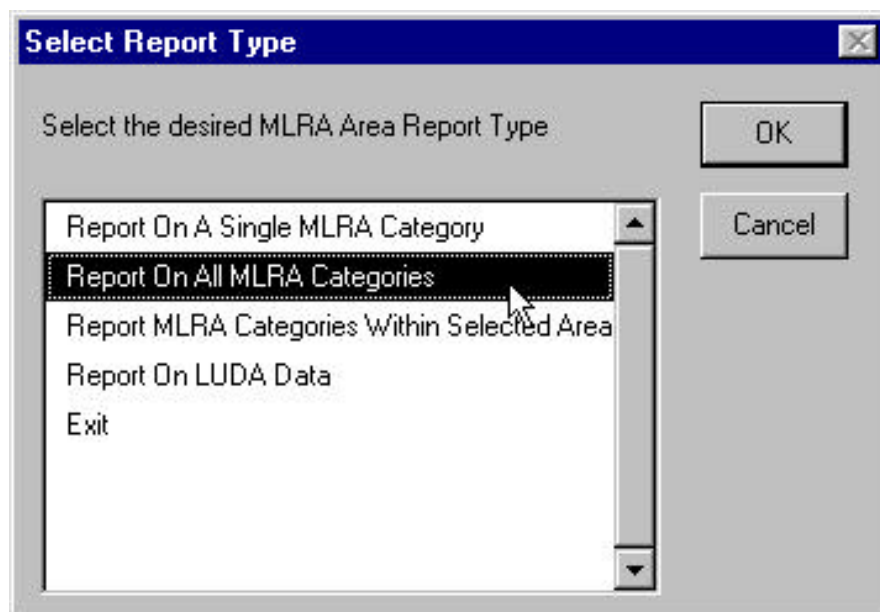


Figure 9-4.2-1. The *Select MLRA Report Type* dialog box

Step 2: Highlight the *Report On All MLRA Categories* option and single click on the *OK* button (figure 9.4.2-1).

Step 3: The *Create Area Report File* dialog box will appear and is automatically set to the *reports* sub-directory (figure 9.4.2-2). Enter a file name in the dialog box *File Name* input line and click on the *OK* button.

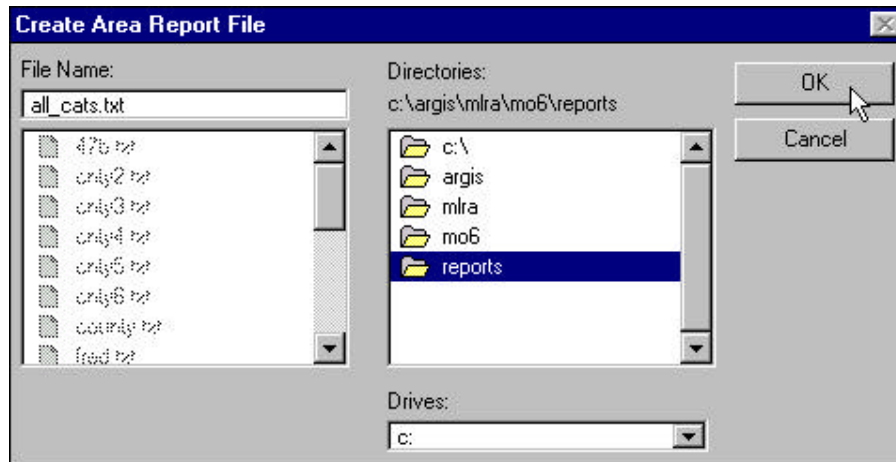


Figure 9.4.2-2. The *Create Area Report File* dialog box. Enter the name for the report file and click on the *OK* button to save a text file of the area report

Step 4: A text editor window will appear containing the date, each MLRA Category title with areas calculations presented in square kilometers, square miles, and acres.

9.4.3 Report County MLRA Categories Area

NOTE: This function requires that the user select a county polygon or a group of county polygons prior to initiating the Area Report Generator.

Step 1: Activate the *Counties* theme in the *MLRA Revision Proposal* view and turn the *Counties* theme on (put a check mark in the theme on/off box (Section 1.0)). If necessary, move the *Counties* theme above the *MLRA Proposal* theme in the theme table of contents. This will allow the *Counties* theme to be visible over the *MLRA Proposal* theme (if the *MLRA Proposal* and *Topography*).

Step 2: Use the *Select Feature In All Other Themes Except MLRA PROPOSAL* button (figure 9.4.3-1) to select the county(s) from which to create an area report.

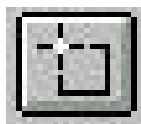


Figure 9.4.3-1. The *Select Feature In All Other Themes Except MLRA PROPOSAL* button

Step 3: Click on the *Area Report Generation* button (figure 9.4.0-1) and the *Select MLRA Report Type* dialog box will appear (figure 9.4.3-2).

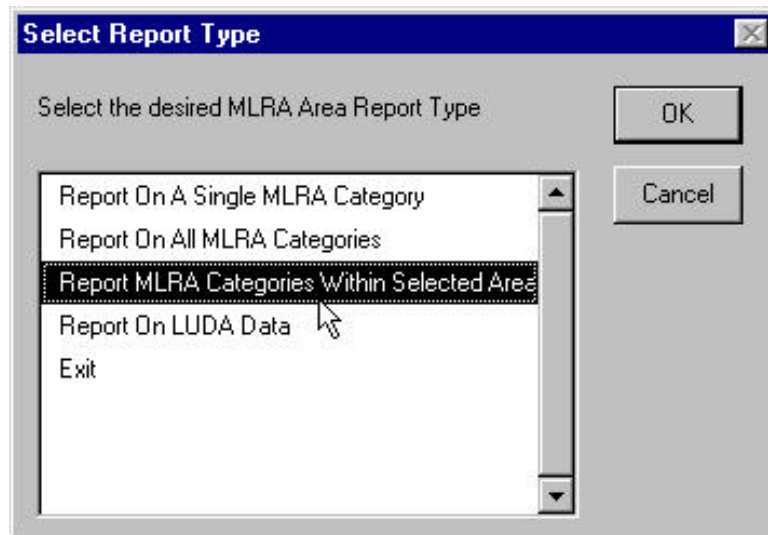


Figure 9.4.3-2. The Select MLRA Report Type dialog box.

Step 4: Highlight the *Report MLRA Categories Within Selected Areas* option and single click on the *OK* button (figure 9.4.3-2)..

Step 5: Another dialog box will appear titled *Allowable Area Report Theme* with different options (figure 9.4.3-3). Select on the *Counties Theme* option and click on the *OK* button.

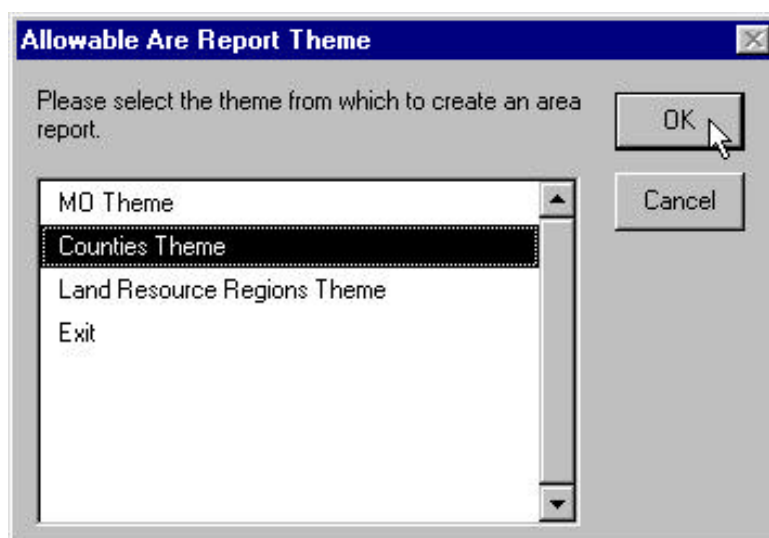


Figure 9.4.3-3. The Allowable Area Report Themes dialog box. Select the Counties Theme option for a county or counties area report.

Step 6: The *Create Area Report File* dialog box will appear and is automatically set to the *reports* sub-directory (figure 9.4.3-4). Enter a file name in the dialog box *File Name* input line and click on the *OK* button.

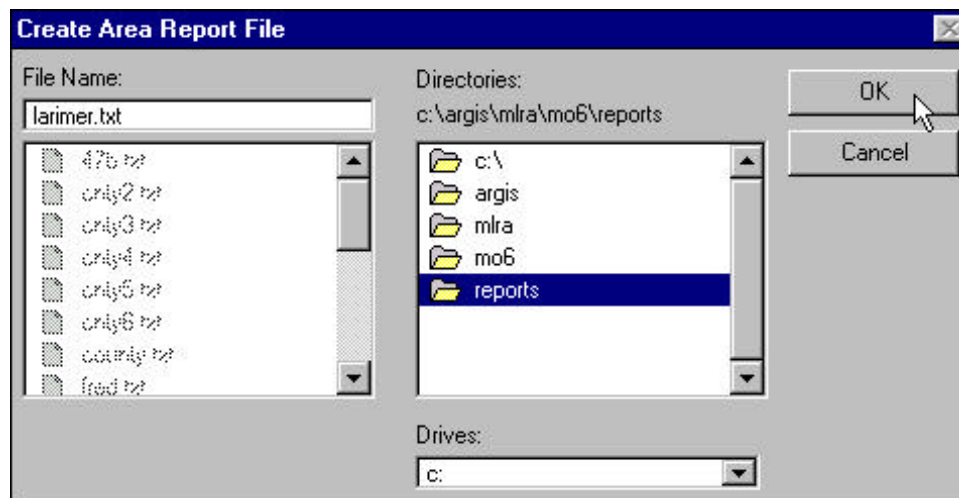


Figure 9.4.3-4. The *Create Area Report File* dialog box. Enter the name for the report file and click on the OK button to save a text file of the area report

Step 7: The MARTHAS system will then create the area report. This could take 30 seconds to 30 minutes depending on operating system, number of selected counties, and size of data theme. The result is an organized area report of MLRA categories by county (figure 9.4.3-5).

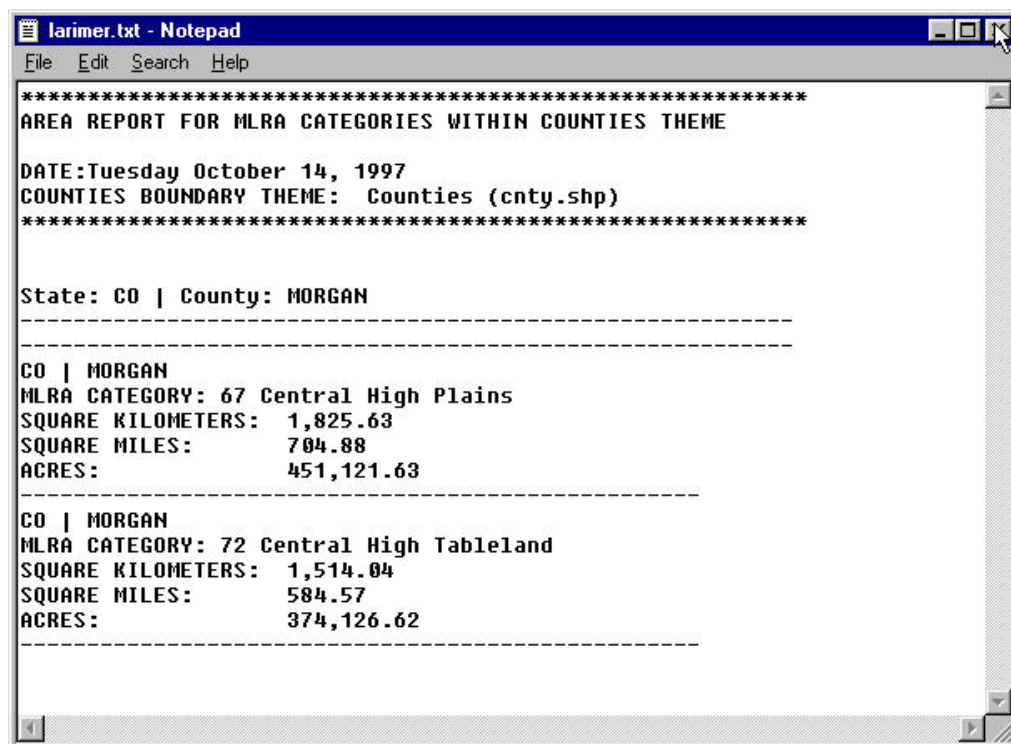


Figure 9.4.3-5. County area report text file.

9.4.4 – Report on LUDA Data By MLRA Category

NOTE: This function requires the Spatial Analyst ArcView Extension.

STEP 1: Select an MLRA Category from the MLRA PROPOSAL theme. This function will not work without a category selection. Refer to section 4.1 - 3 for details about making a MLRA category selection set from the MLRA PROPOSAL theme.

STEP 2: Click on the Area Report Generation button and select the *Report On LUDA Data* option (figure 9.4.4 – 1) and click the *OK* button.

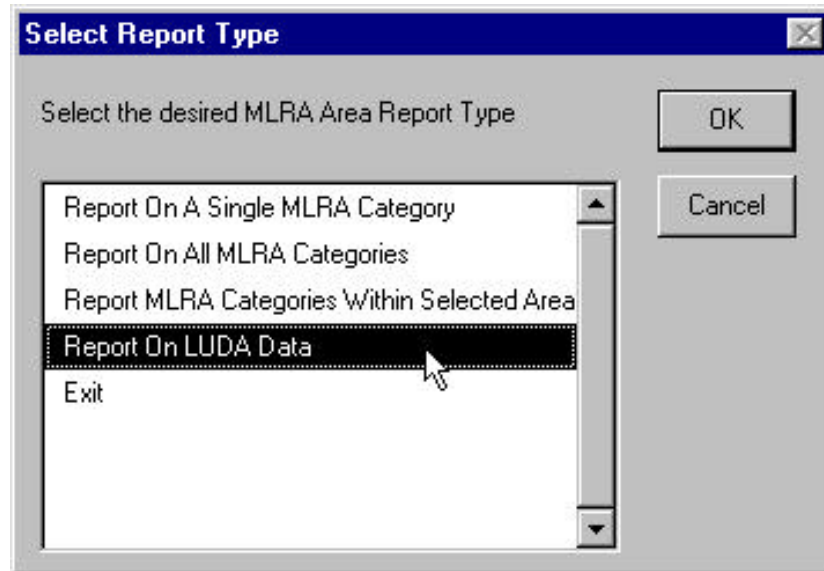


Figure 9.4.4 – 1. The *Select MLRA Report Type* dialog box.

STEP 3: The user is prompted to enter a name for the report (figure 9.4.4 – 2). The default name is *luda.txt* but the user can enter any report file name desired. The report is saved to the *reports* subdirectory unless user browse to another subdirectory.

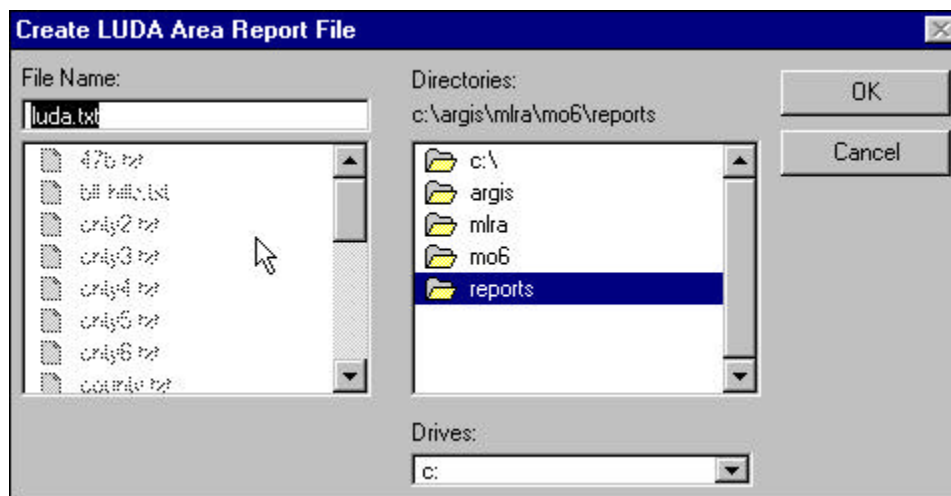


Figure 9.4.4 – 2. Dialog box to enter file name of report file. The default file name is *luda.txt* saved to the default *report* subdirectory.

STEP 4: The function will automatically produce a table containing the LUDA classifications and the number of cells for each classification (figure 9.4.4 – 3). The user is given the option to keep the table in order to make chart graphics for inclusion into a report. The default answer is NO.

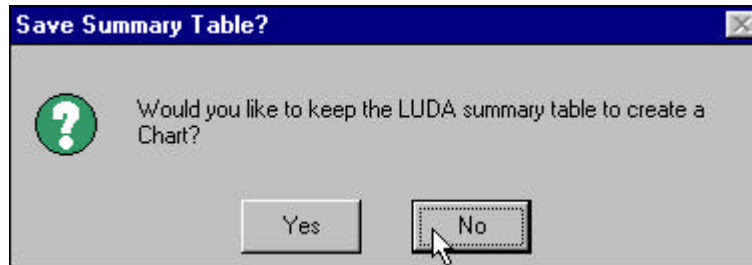


Figure 9.4.4 – 3. The user is given the option to keep the table in order to make chart graphics for inclusion into a report. The default answer is NO.

STEP 5: A text file report is automatically generated containing the LUDA classification codes and area of the classes within the selected MLRA category (figure 9.4.4 – 4). The function is complete when the LUDA area report appears on the screen.

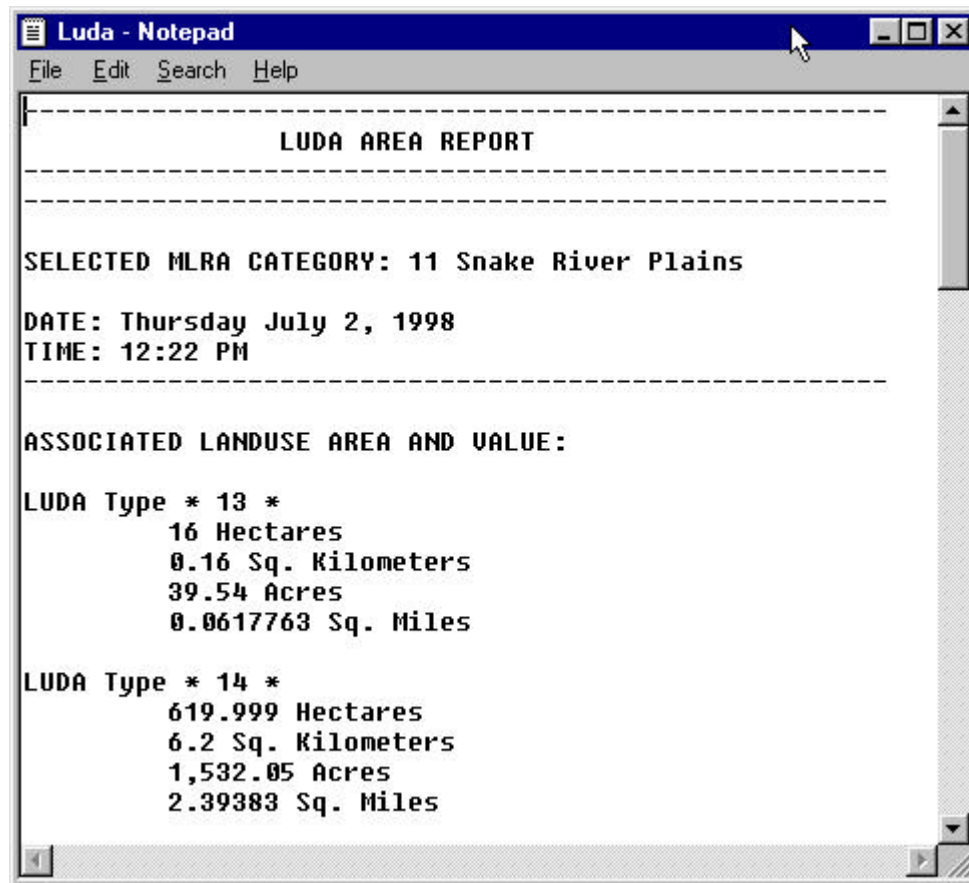


Figure 9.4.4 – 4. Example of the LUDA report file

SECTION 9.5 - Splitting A Polygon

Many polygons within an MLRA data set are long and narrow and can pass through two or more MLRA categories. The user may want to split these polygons at the natural break of the MLRA categories. This section describes the process of splitting a polygon.

Step 1: Select the polygon to split. It will highlight yellow when selected.

Step 2: Click on the *Split A Polygon* item under the *Split* menu pulldown. The yellow highlight of the selected polygon will turn off. At this point the system is ready for you to draw the split line.

Step 3: Place the cursor to one side of the polygon and single click. Move the cursor just beyond the other side of the polygon and again single click. Without moving the cursor, double click the mouse to end the split line drawing mode (figure 9.5-1).

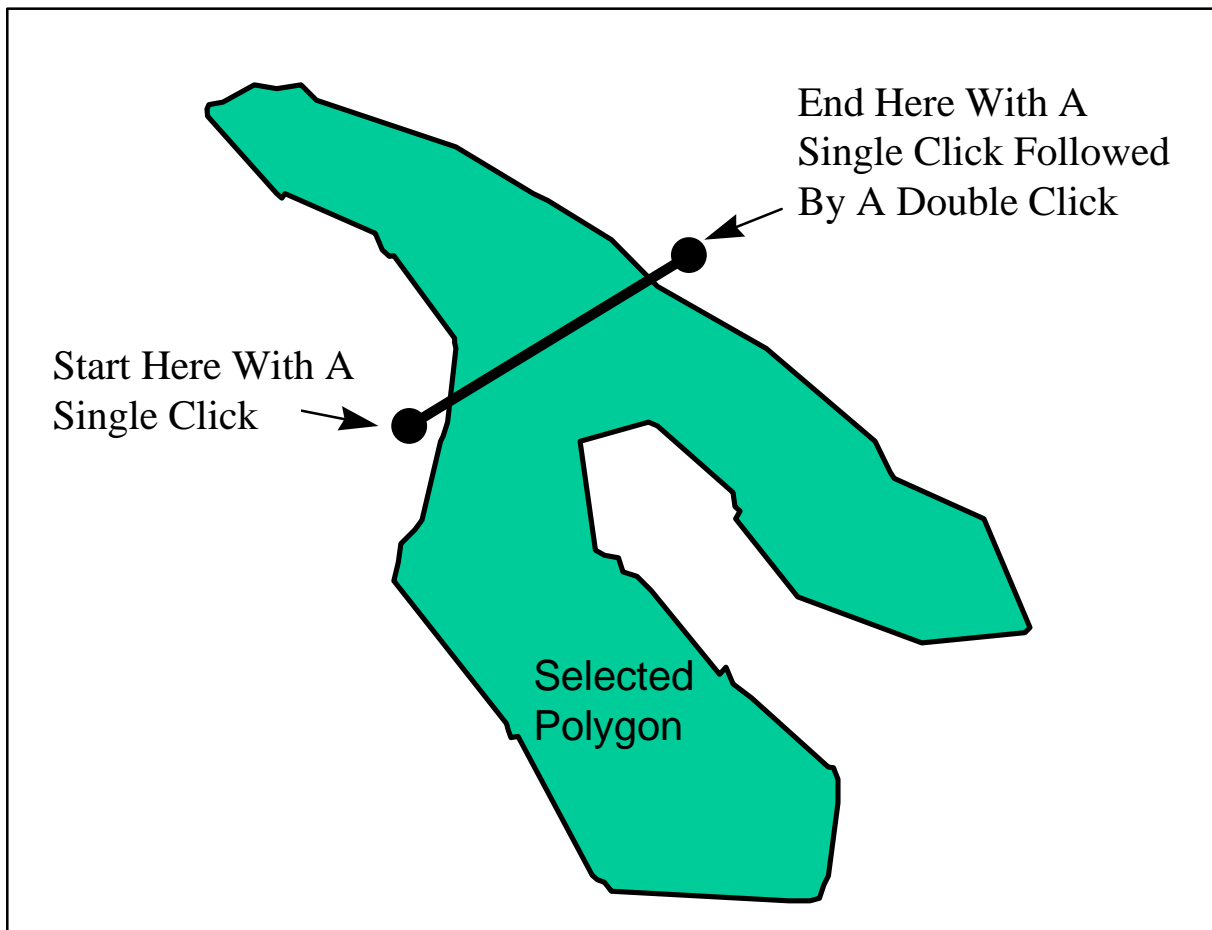


Figure 9.5-1. Process for splitting a selected polygon. Start by single clicking on one side of the selected polygon. Then move the cursor to the other side of the polygon and single click. Without moving, double click to end.

Step 3: The system will then process the split (3 - 10 minutes, depending on operating system).

IMPORTANT: When Splitting Polygons Won't Work

A split will not occur if the user does not intersect any polygon lines (figure 9.5-2), or split line does not extend across the polygon beyond the other side-one intersection (figure 9.5-3), or intersects with polygon line(s) more then twice (figure 9.5-4), or crosses through an island polygon (figure 9.5-5), or the split line intersects up to but not through an island polygon (figure 9.5-6).

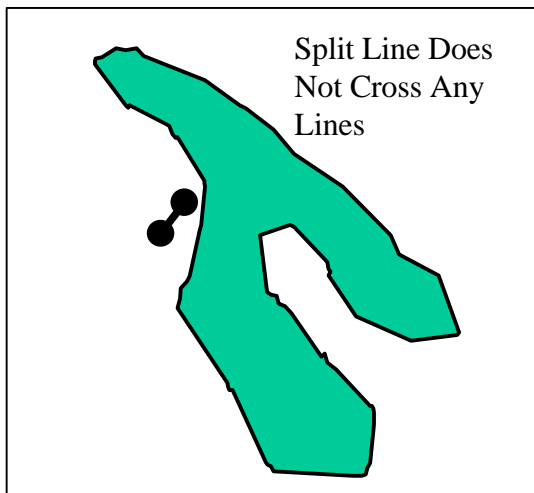


Figure 9.5-2

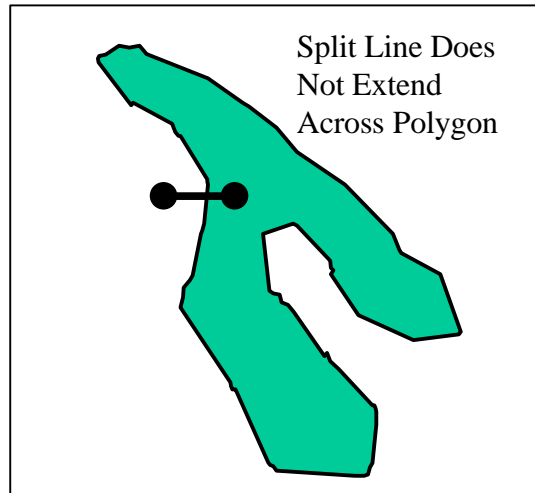


Figure 9.5-3

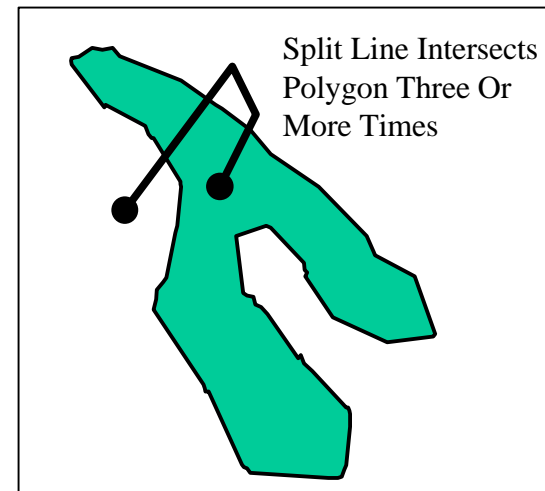
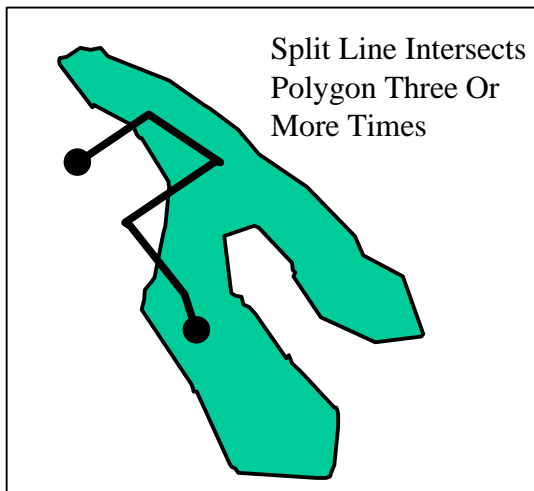
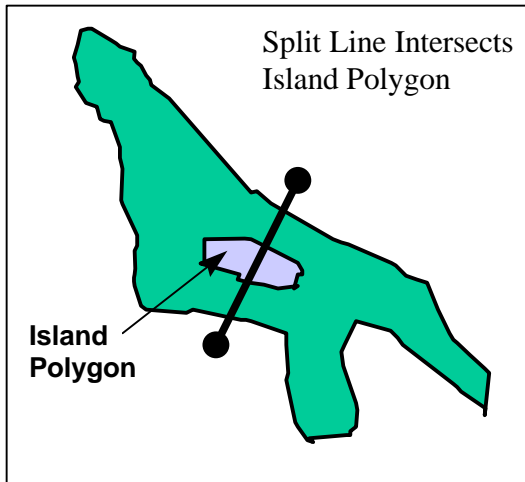
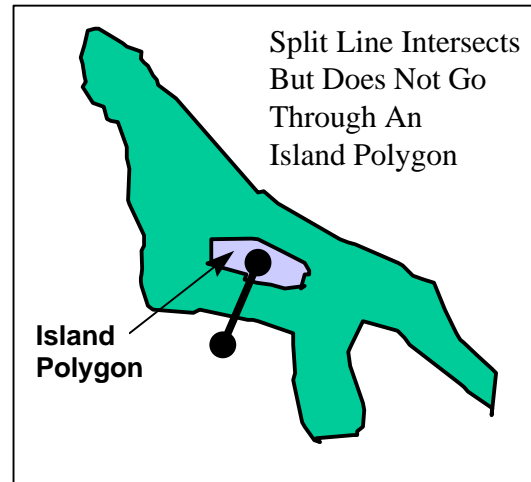


Figure 9.5-4

**Figure 9.5-5****Figure 9.5-6**